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THE BIRDS OF THE NEOTROPICAL GENUS DECONYCHURA

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THE BIRDS OF THE NEOTROPICAL GENUS DECONYCHURA

BY JOHN T. ZIMMER

While studying the birds obtained by the Captain Marshall Field Peruvian Expedition of 1922-23 I have been interested to find that practically all records of *Deconychura longicauda* refer to males or to specimens of unknown sex. It also appears that, until recently, only two specimens of *D. stictolaema* have been recorded, one female (the type) and one not sexed. One example of each species was secured in 1923 at Puerto Bermúdez, Perú, and, curiously enough, that of *longicauda* was a male and that of *stictolaema*, a female. The possible interrelationship of these two forms therefore seemed worthy of investigation.

Thanks to the kindness of Mr. W. E. C. Todd of Carnegie Museum, Pittsburgh, and Dr. Frank M. Chapman of the American Museum of Natural History, New York, I have been able to borrow sufficient material to settle the point at issue. As might have been expected, the two species prove to be quite distinct, but, in the course of the investigation, other unsuspected relationships within the genus have become evident and three new races appear to be worthy of recognition. Since all the forms of the genus came under observation, it seems well to present a review of all the species and subspecies.

I am greatly indebted to Mr. Todd and Dr. Chapman for the loan of material used in this study, and further to Mr. Todd for permission to describe two new forms which were found only in the series belonging to Carnegie Museum.

Genus DECONYCHURA Cherrie.

Deconychura CHERRIE, Proc. U. S. Nat. Mus., **14**, p. 338, 1891—type *Deconychura typica* CHERRIE.

Dendrocinclopa CHUBB, Bull. Brit. Orn. Cl., **40**, p. 107, 1920—type *Dendrocincla longicauda guianensis* CHUBB.

Examination of the various forms of this genus induces the conclusion that all of them can be grouped under two specific heads, *longicauda* and *stictolaema*. These two species are distinguishable

chiefly by the rufous rump and smaller size of *stictolaema*. Their general coloration is not greatly dissimilar, especially in certain western forms, although *longicauda* tends to be more heavily marked on the under surface. Both have a variable amount of rufescence on the upper scapular border of the wing (though it is oftener lacking in *stictolaema*), but the color of the rump appears to be quite constant and diagnostic.

Both species are found together over a wide area in the Amazonian lowlands, but *longicauda* passes farther northward into Colombia and Central America while *stictolaema* appears not to go beyond Ecuador, and there are some other differences at other extremities of their ranges. The distributions are not, therefore, completely parallel although racial distinctions occur in both groups at not far distant points.

The larger and more widely distributed species will be taken up first.

Deconychura longicauda longicauda (Pelzeln).

Dendrocincla longicauda PELZELN, Orn. Bras., **1**, pp. 42, 60, 1868 part, Marabitanas and Barra do Rio Negro (=Manáos); SCLATER AND SALVIN, P. Z. S. Lond., 1868, p. 54—Amazonia (part); idem, Nom. Av. Neot., p. 67, 1873— (ex Pelzeln, part); SALVIN, Ibis, 1885, p. 421– Bartica Grove, Merumé Mts., British Guiana; RIDGWAY, Proc. U. S. Nat. Mus., **10**, p. 496, "1887"=Jan., 1888—(ex Pelzeln, part); SCLATER, Cat. B. Brit. Mus., **15**, p. 165, 1890—part, Barra do Rio Negro, Surinam, Merumé Mts and Bartica Grove, British Guiana; OBERHOLSER, Proc. Acad. Nat. Sci. Phil., **56**, p. 451, 1904—(ex Pelzeln, part).

Dendrocincla longicauda guianensis CHUBB, Bull. Brit. Orn. Cl., **39**, p. 61, 1919—Bartica Grove, Brit. Guiana.

Deconychura longicauda HELLMAYR, Nov. Zool., **14**, p. 368, 1907 part, Bartica Grove, Merumé Mts., Brit. Guiana, and Marabitanas, Barra do Rio Negro, Brazil; idem, op. cit., **17**, p. 334, 1910– part, Barra and Manáos; RIDGWAY, Bull. U. S. Nat. Mus., **50**, pt. 4, p. 284, 1911 part, Brit. Guiana to Rio Negro; BEEBE, Trop. Wild Life, **1**, p. 133, 1917 Bartica Grove; HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., **13**, pt. 4, p. 363, 1925—part, Dutch and British Guiana, and northern Brazil (Manáos and Marabitanas; type loc. desig. Manáos).

Dendrocinclopa longicauda guianensis CHUBB, Birds. Brit. Guiana, **2**, p. 120, 1921—Bartica Grove and Merumé Mts., Brit. Guiana.

Diagnosis.—Darker and deeper in coloration than *pallida* from south of the Amazon; pale streaking of anterior under parts deeper buff, more sharply defined. Similarly deeper colored than the western

races (Perú to Costa Rica), though to a lesser degree, with the pectoral spots distinctly more linear and less sagittate or guttate.

Habitat.—The Guianas and Brazil north of the Amazon.

Description. Top of the head dark Olive Brown[1] to blackish Clove Brown, with narrow buffy shaft streaks; back about Bister, sometimes approaching Snuff Brown; upper tail coverts and extreme lower margin of rump light Bay; chin and throat light Tawny-Olive to Cinnamon-Buff, regularly though lightly margined with brown, the margins becoming broader on the lower portion of the throat; breast and sides deep Saccardo's Umber, with central shaft stripes of Tawny-Olive or Cinnamon-Buff; lores dusky whitish; auriculars Sepia with Cinnamon-Buff shaft lines; streaks of the breast continued down the middle of the belly as narrower hair lines, sometimes broadened a little toward the tips of the feathers to form indistinct spots; flanks Saccardo's Umber, unstreaked; under tail-coverts like the flanks but with a rufescent tinge at the tips of the longest feathers and with occasional strong traces of central spots. Rectrices Bay, paler beneath with under side of shafts still lighter. Remiges light Chestnut with an olivaceous wash along the outer margin; five outer primaries with dull blackish tips; remainder of primaries and secondaries with an obscure dusky area along the shaft near the tip; scapular border of lesser upper wing-coverts suffused with Chestnut to a varying degree; rest of upper wing-coverts Brussels Brown with a chestnut tinge on the inner webs; under wing-coverts deep tawny Ochraceous-Buff. Sexes alike in color; female smaller in size. Wing, ♂ 102-114 mm., ♀ 95-97.5; tail, ♂ 96-115, ♀ 92-99; exposed culmen, ♂ 22-26, ♀ 20-23; culmen from base, ♂ 25-30, ♀ 23.5-27; tarsus, ♂ 22-25.5, ♀ 20-22.5.

There are certain minor variants of the above details of coloration, but they are not capable of geographical apportionment. The lesser upper wing-coverts along the scapular border are but lightly rufescent in six specimens, a little stronger in seven, more prominently marked in eight, and quite rufescent in four. The specimens from French Guiana average more rufescent on the shoulder than do those from nearer the Amazon, but one of the Guianan birds is very lightly marked in this particular and two of the Obidos examples are among the prominently marked series. Since the reduction in intensity of the shoulder patch is characteristic of the race found south of the Amazon in Brazil, it is not strange that birds from just across the

[1]Names of colors when capitalized indicate direct comparison with Ridgway's "Color Standards and Color Nomenclature."

river show a greater tendency in that direction than do examples from a more distant region.

Pelzeln described his *longicauda* from specimens secured by Natterer at Borba, Marabitanas, and Manáos, Brazil. Borba was generally accepted as type locality until Hellmayr (1925) pointed out that only one specimen, from Manáos, out of Natterer's original series, agreed in detail with Pelzeln's description, and that Manáos must, therefore, replace Borba as type locality. The matter is important since the forms found north and south of the lower Amazon prove to be different.

Chubb (1919) renamed the northern form *guianensis* on characters which he found in (two?) specimens from British Guiana, but he neglected to explain what he considered to be typical *longicauda*. Later (1921) he gave the range of *guianensis* as confined to British Guiana, evidently distinguishing it from the specimens taken in Surinam and at Manáos which were in the British Museum collection with his type. Hellmayr (1925) noted that British Guianan specimens (including Chubb's type of *guianensis*) were absolutely indistinguishable from Manáos specimens. A fine series of excellent skins in Carnegie Museum from French Guiana and from Obidos, Manacapurú, and Tonantins, Brazil, further show that the form found north of the Amazon in Brazil and the Guianas is indivisible. The Manacapurú specimens are nearly topotypical *longicauda*.

Deconychura longicauda pallida subsp. nov.

Dendrocincla longicauda PELZELN, Orn. Bras., 1, pp. 42, 60, 1868 part, Borba, Rio Madeira; SCLATER AND SALVIN, P. Z. S. Lond., 1868, p. 54 Amazonia (part); idem, Nom. Av. Neot., p. 67, 1873 (ex Pelzeln, part), RIDGWAY, Proc. U. S. Nat. Mus., 10, p. 496, "1887" Jan., 1888 (ex Pelzeln, part); SCLATER, Cat. B. Brit. Mus., 15, p. 165, 1890 Ega, Rio Solimões; OBERHOLSER, Proc. Acad. Nat. Sci. Phil., 56, p. 451, 1904 (ex Pelzeln, part).

Deconychura longicauda HELLMAYR, Nov. Zool., 14, pp. 367, 368, 1907 part, Borba; idem, op. cit., 17, p. 334, 1910 part, Calama, Rio Madeira; idem, Abhandl. Bayr. Ak. Wiss., Math.-phys. Kl., 26, No. 2, pp. 41, 92, 1912—Peixe-Boi, Pará); SNETHLAGE, Bol. Mus. Goeldi, 8, p. 343, 1914—Providencia, (Pará), Rio Iriri (Bocca do Curua); HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 4, p. 363, 1925 part, Ega, Borba, Calama, Brazil, and Río San Mateo, n. Bolivia; CHAPMAN, Bull. Am. Mus. Nat. Hist., 55, p. 461, 1926—part, Rio Roosevelt, Brazil.

Type from Hyutanahán, Rio Purús, Brazil. No. 86902 Carnegie Museum. Adult male. Collected December 31, 1921 by S. M. Klages. Original number 28304.

Diagnosis. Similar to *D. l. longicauda* from north of the Amazon (Manáos to the Guianas), but colors of body plumage paler; throat and spots of breast distinctly more yellowish buff, less orange-tinted; dark edges of the feathers on breast and crown paler olive, less dusky; feathers of throat less conspicuously edged with dusky; streaks on breast averaging narrower, less sharply defined; rufescent area on scapular border of upper wing-coverts averaging less prominent, sometimes nearly obsolete.

Habitat.—Brazil, south of the Amazon, and possibly lowlands of northern Bolivia.

Description of type.—Top of the head dark Olive Brown, with the feathers dusky on their edges and with narrow shaft lines of dull Pinkish Buff, broader on the lateral margins of the occiput and nape where they form a noticeable pale superciliary stripe; back light Snuff Brown, changing abruptly on the upper tail-coverts and the lowest margin of the rump to Kaiser Brown. Lores dusky white; auriculars, malar region, and sides of neck dusky Olive-Brown with buffy shaft streaks; chin and throat light Pinkish Buff; sides of lower throat with dusky olivaceous edges; breast light Saccardo's Umber, with obovate central shaft streaks of Pinkish Buff; belly and flanks paler, Buffy Brown, with occasional faint suggestions of shaft streaks; under tail-coverts anteriorly like the belly, posteriorly Hazel. Rectrices Bay, paler beneath and with under side of shafts still paler. Remiges bright Auburn with exterior margins washed with olive; tips of five or six outer primaries dull blackish; remainder of primaries and secondaries with a more or less obvious dusky area at tip; upper wing-coverts pale Saccardo's Umber, those along scapular edge of wing suffused with Hazel; under wing-coverts Cinnamon-Buff, brownish at the bend of the wing; inner margin of quills Pecan Brown. Wing, 105 mm.; tail, 99; exposed culmen, 26; culmen from base, 29.5; tarsus, 23.

Females similar but smaller. Range of measurements in both sexes as follows: wing, ♂ 104-109 mm., ♀ 96-99; tail, ♂ 95-104, ♀ 88.5-104; exposed culmen, ♂ 25-27, ♀ 21.5-23; culmen from base, ♂ 28.5-31, ♀ 25-27; tarsus, ♂ 22-24.5, ♀ 21-22.5.

As in typical *longicauda* there is considerable individual variation within the limits of the racial characteristics. One male from the type locality appears to be slightly immature, judging by the texture of the abdominal feathers. The upper belly and hind neck in this specimen are inclined to be broadly, but obscurely, spotted with

pale buffy white, margined, equally obscurely, with dusky. In normal plumage the belly is unspotted and the nape is less spotted than streaked. In five specimens there are only slight traces of the rufescent patch on the scapular border of the wing; there is a little more in eight others (including the type), but none of the series is as strongly marked as are most specimens from north of the Amazon.

Three specimens from São Paulo de Olivença, Rio Solimões, are somewhat intermediate between *pallida* and *longicauda* but show no tendency toward the characters of the Peruvian form next to be described. All three have a slight suggestion of immaturity in the texture of the plumage and immaturity may possibly account for the differences observed. They are not very different from two other males, one from Villa Braga, Rio Tapajóz, and one from Nova Olinda, Rio Purús, and may, after all, represent only the extreme variants of *pallida*. They are slightly deeper buff on the pale portions of the ventral plumage than typical *pallida* but are paler and less sharply marked than *longicauda*. There is very little rufescence on the shoulder of any of them.

Three examples from the Pará district (Colonia de Mojuy, Santarem, and Benevides, Bragança R. R.) present a somewhat different problem. These birds may prove to be separable from *pallida* from which they differ by having the markings of the throat and chest even less buffy. The Santarem specimen is not so different from some of the palest Purús and Tapajóz examples but the female from Benevides is much grayer on the belly and whiter on the throat, while the ventral streaking is more linear than in any of the series of true *pallida*. The male from Benevides is intermediate. In any case, without a larger series from the Pará region, it is unwise to attempt the separation of another race on the differences noted. All three of these specimens have only a little rufescence on the shoulder.

The record from Río San Mateo, northern Bolivia, given by Hellmayr (1926), is based on a specimen in the Berlepsch collection. Without examining this specimen in the light of recent observations, it is impossible to say without doubt that it belongs to *pallida* and not to some other form, known or unknown. From the geographical position of the locality it is more likely to belong with *pallida* than with the Peruvian race.

Deconychura longicauda connectens subsp. nov.

Deconychura longicauda HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 4, p. 363, 1925—part, Puerto Bermúdez, Perú; CHAPMAN, Bull.

Am. Mus. Nat. Hist., 55, p. 461, 1926- part, Sabanilla and Macas, e. Ecuador

Type from Puerto Bermúdez, Rio Pichis, Dept. Junin, Perú. Altitude 1100 feet. No. 65866 Field Museum of Natural History. Adult male. Collected March 17, 1923 by J. T. Zimmer. Original number 3514.

Diagnosis. Similar to *D. l. typica* from Costa Rica, but averaging larger in all dimensions. Top of the head with shaft streaks broader; ventral pattern similar but belly more olivaceous, less grayish; pale centers of pectoral feathers a little narrower and less sharply bordered with more olivaceous (less blackish) margins.

From *D. l. longicauda* it is separable by the paler, less ochreous throat; the pectoral feathers with their centers paler and less ochreous but more sharply defined by the dusky edges, leaving the shaft spots broader and more sagittate than the more deeply colored linear streaks of *longicauda*.

From *D. l. pallida* it is separable by the deeper general coloration, with the throat somewhat deeper buff while the wings and tail are about the same in both forms; breast feathers more heavily margined with more dusky olive; belly deeper olive; pectoral spots more sharply defined and less linear; back deeper brown.

Habitat. Tropical zone of eastern Perú and southeastern Ecuador.

Description of type. -Back Brussels Brown x Raw Umber, changing abruptly to Chestnut on the very lowermost rump feathers and the upper tail-coverts; top of the head Brussels Brown x Mummy Brown with relatively narrow shaft streaks of deep Clay Color, present also on the hind neck but disappearing on the mantle; streaks on the lateral borders of the head broader, forming a rather pronounced buffy superciliary stripe on each side. Lores white with a faint buffy tinge; auriculars mostly whitish buff with narrow, dusky brown edges; chin and upper throat whitish with a faint buffy tinge and with narrow, buffy brown edges, not sharply defined; malar region and lower throat dull, pale Cinnamon-Buff with dusky olive brown margins and tips; breast with sagittate central spots of Cinnamon-Buff, edged with dark Saccardo's Umber; sides of neck similar but central areas not so sharply defined; sides of breast similar to middle but with shaft spots somewhat more linear though retaining a broadened area near the tip which continues the spotted appearance; lower breast with gradually reducing shaft spots which are

continued faintly down the middle of the upper belly; flanks and thighs Saccardo's Umber without pale markings; under tail-coverts with anterior portion Saccardo's Umber, changing to Kaiser Brown or pale Chestnut on the terminal portion. Rectrices Bay, paler beneath and with under side of shafts still paler. Remiges light Chestnut with an olivaceous wash along the outer margin; five outer primaries with dull blackish tips; remainder of primaries and secondaries with a rather obscure dusky area along the shaft near the tip; upper wing-coverts Brussels Brown with a Chestnut tinge on the inner webs; lesser coverts along the scapular border distinctly though not strongly Chestnut in tone; under wing-coverts deep tawny Ochraceous-Buff; bend of wing beneath Brussels Brown; inner margin of quills Cacao Brown. Iris brown; bill with maxilla mostly brown, blackish at the base, and mandible olive green; feet bluish slate. Wing, 102 mm.; tail, 102; exposed culmen, 25; culmen from base, 30; tarsus, 22.

Two specimens from Sabanilla, Río Zamora, and Cutucuo, Macas region, eastern Ecuador, show the same general features as the type, with a closer approach toward *typica* in coloration though not in size. The Sabanilla bird (a male in molt) especially is very similar to a specimen of *typica* from Palmar, Costa Rica, being more grayish olive and less rufescent on the breast and belly than the type of *connectens*, with the pectoral spots paler ochraceous. The Cutucuo specimen (of undetermined sex) is more dusky below than either of the others, with the dusky margins of the feathers of breast and sides rather darker; the back also is darker, being Raw Umber, with faint blackish tips; the top of the head is duskier with the shaft streaks narrower; the entire mid belly is spotted broadly like the breast but the dark edges are less dusky and more pale olivaceous, giving the mid belly a distinctly pale median area. The under wing-coverts are quite pale in the Cutucuo bird in comparison with the deep buff of the type, but in the Sabanilla specimen the color is very little lighter than in the bird from Perú. Both Ecuadorian skins are larger than the type, thus differing even more from *typica* in that regard. The first of each pair of the following measurements refers to the Sabanilla specimen; the second, to the Cutucuo specimen. Wing, 108, 106; tail 101 (imperfect), 109; exposed culmen, 22.5, 23.5; culmen from base, 26.5, 29; tarsus, 23, 24.5.

If these Ecuadorian birds belong to the Peruvian race, *connectens*, as I believe, this race is somewhat more variable than the others and, while recognizable in itself, exhibits certain characteristics of

the other forms between which it is the connecting link. Curiously enough, although it is no ornithological novelty, its closest affinities are not with the immediately adjacent forms but with those once removed. Actually it is closest to *typica* from which it is separated not only by its subspecific characters but also by the intervention of the Colombian race, *minor*.

Deconychura longicauda minor Todd.

Deconychura typica minor TODD, Proc. Biol. Soc. Wash., 32, p. 116, June 27, 1919—El Tambor, Santander, Colombia; HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 4, p. 362, 1925—El Tambor.

Diagnosis. Similar to *D. l. typica* from Costa Rica but upper parts more olivaceous and less rufescent; lores and auriculars whiter, less buffy; pale markings of under parts lighter and more restricted; size possibly smaller.

From *connectens* of Perú and Ecuador it is distinguishable by a still greater difference in size; pale shaft streaks on the crown narrower; general coloration paler except that the dusky margins of the pectoral feathers are darker in contrast to the much lighter central spots.

From *longicauda* and *pallida* it is distinguishable by having the chest more dusky with broad central spots, whereas in the other two forms the pectoral marking is linear, with the margins uniform with the sides and flanks.

Habitat.—Known only from the type locality, but possibly occurring in other parts of central Colombia.

Description.- Back dark Buffy Brown, changing abruptly to Kaiser Brown x Chestnut on the upper tail-coverts and adjacent margin of the rump; top of the head dark Olive-Brown with buffy shaft lines not very strongly marked. Lores whitish; auricular and malar regions whitish buff edged with dusky; throat buffy Isabella Color with dusky brown margins on at least the lateral feathers; chest dark Olive-Brown or blackish brown at the tips of the feathers, with broad, rounded central spots of Cartridge Buff x Cream-Buff; lower breast somewhat paler and more uniform, with the central spots indistinct, not sharply defined; belly and flanks Light Brownish Olive or Brownish Olive; under tail-coverts anteriorly like belly, Hazel at tip. Rectrices light Bay, paler beneath and with under side of shafts still paler. Remiges light Bay; upper wing-coverts a trifle browner; lesser upper coverts along scapular border rufescent; under wing-coverts Ochraceous-Buff. Female similar but smaller. Wing,

♂ 92 mm., ♀ 88; tail, ♂ 89, ♀ 86; exposed culmen, ♂ 21, ♀ 19, culmen from base, ♂ 24, ♀ 21.5; tarsus ♂ 22, ♀ 20.

This race, instead of being intermediate between *typica* and *connectens* in taxonomic characters, as it is geographically, is a small, pale extreme, unlike either although nearer to them than it is to *longicauda* or *pallida*. It is closest to *typica*, having the dusky pectoral area spotted with paler color as in that form. The type may be slightly immature, judging by the texture of the feathers.

Deconychura longicauda typica Cherrie.

Deconychura typica CHERRIE, Proc. U. S. Nat. Mus., **14**, p. 339, 1891—Pozo Azul de Pirrís, s.w. Costa Rica; idem, Expl. Zool. Merid. Costa Rica, p. 39, 1893—Palmar, s.w. Costa Rica; idem, Anal. Inst. Fis.-Geog. Costa Rica, **6**, p. 17, 1893—Pozo de Pital, s.w. Costa Rica (descr. nest and eggs); BANGS, Auk, **18**, p. 367, 1901—Divala, Chiriquí, Panamá; SHARPE, Hand-list, **3**, p. 77, 1901—Costa Rica to Panamá; HELLMAYR, Nov. Zool., **14**, p. 368, 1907—Costa Rica and Chiriquí (diag.); CARRIKER, Ann. Car. Mus., **6**, p. 652, 1910—Pozo Pital, Pozo Azul de Pirrís, El General de Terraba, El Pozo de Terraba, s.w. Costa Rica; RIDGWAY, Bull. U. S. Nat. Mus., **50**, pt. 4, p. 285, 1911—s.w. Costa Rica and Panamá.

Deconychura typica typica HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., **13**, pt. 4, p. 361, 1925—s.w. Costa Rica and w. Panamá.

? *Dechonychura typica minor* Griscom, Am. Mus. Novit., **293**, p. 1, 1928—n. Chiriquí, Panamá.

Diagnosis.—Similar to *D. l. longicauda* but smaller; feathers of chest with more blackish margins and more sagittate, less linear, pale central areas; belly paler.

From *minor* it is distinguishable by its more rufescent upper parts and its more extended and deeper buff markings on the chest.

From *connectens* it is separable by smaller size, darker margins on the feathers of the chest, more buffy throat, narrower shaft streaks on the top of the head, paler belly, and slightly more rufescent back.

Habitat.—Southwestern Costa Rica and western Panamá.

Description.—Top of head Clove Brown with hair streaks of Pinkish Buff along the shafts; back Brussels Brown, changing abruptly to Chestnut on the upper tail-coverts and extreme lower border of the rump. Lores dusky white, faintly tinged with buff; a narrow superciliary line light Pinkish Buff; malar region and auriculars dull Cinnamon-Buff with dusky margins; chin and throat light Pinkish Buff with traces of dusky tips; feathers of upper breast with sagittate central spots of light Cinnamon-Buff, margined and tipped with blackish Clove Brown, blacker on the central feathers, more olivaceous on the lateral ones; lower breast, sides and flanks Buffy

Brown with indistinct shaft spots of pale buff becoming obsolete on the belly and lower flanks; anterior under tail-coverts like the belly, posterior ones Chestnut x Auburn. Rectrices Bay x Chestnut, paler beneath and with under side of shafts still paler. Remiges light Chestnut with an olivaceous tinge along the outer margin, especially toward the base; five or six outer primaries with dusky brown tips; remainder of primaries and secondaries with an indistinct darker subterminal area; upper wing-coverts mostly Snuff Brown, more rufescent on the inner webs; the lesser coverts at the scapular border distinctly Hazel; under wing-coverts deep tawny Ochraceous-Buff with bend of wing a little browner; inner margin of quills Army Brown. Measurements (including those by Ridgway, 1911) as follows: wing, ♂ 94-102 mm., ♀ 86-90; tail, ♂ 89.5-96, ♀ 83.5-88; exposed culmen, ♂ 19.5-23, ♀ 20-21.5; culmen from base, ♂ 25, ♀ 23; tarsus, ♂ 20.5-22, ♀ 19-20.

The above description is drawn up from a specimen collected by Cherrie at Palmar, Costa Rica. Other specimens examined vary in the direction of more rufescent upper parts, blacker margins on the feathers of the chest, deeper buff throat, and darker, more spotted belly.

Deconychura stictolaema stictolaema (Pelzeln).

Sittasomus stictolaemus PELZELN, Orn. Bras., 1, pp. 42, 59, 1868—Borba, Rio Madeira; SCLATER AND SALVIN, Nom. Av. Neot., p. 66, 1873—Amaz. sup.; SCLATER, Cat. B. Brit. Mus., 15, p. 120, 1890—part, Amazonia (part, ex Pelzeln).

Deconychura stictolaemus HELLMAYR, Nov. Zool., 14, p. 368, 1907—Borba.

Deconychura stictolaema HELLMAYR, Nov. Zool., 17, p. 333, 1910—Borba; SNETHLAGE, Bol. Mus. Goeldi, 8, p. 343, 1914—Rio Madeira; HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 4, p. 362, 1925—part, Borba.

Diagnosis.—More olivaceous in tone than the other races, with paler buffy markings below; top of the head browner (less blackish) than in *clarior* from north of the Amazon.

Habitat.—Amazonian lowlands of eastern Brazil, south of the Amazon and west at least as far as the Rio Tapajóz.

Description.—Top of the head Clove Brown with buffy shaft lines, obsolete on the nape; mantle light Bister; lower back, rump, and upper tail-coverts light Chestnut. Lores whitish with dusky tips immediately before the eye; shaft streaks of crown wider on lateral borders, forming a pale superciliary line on each side; auriculars dusky brown with pale shaft lines; malar region with shaft

marks broader, more ovate; chin and throat light Olive-Buff with light Olive Brown margins and tips which are continued, darker and heavier, on the upper breast, leaving sagittate central spots of buff; belly and flanks Buffy Brown or Saccardo's Umber; sides like breast but with pale central spots reduced to shaft lines; flanks Brownish Olive x Light Brownish Olive; mid belly dark Isabella Color; under tail-coverts like belly on their upper portion, dark Cinnamon-Rufous on the lower part. Rectrices deep Chestnut above, light Russet below, with Apricot Buff shafts. Remiges fuscous; outer webs of primaries and secondaries Snuff Brown x Saccardo's Umber, becoming more rufescent toward the tips of the inner secondaries; tertials Auburn x Chestnut; upper wing-coverts Dresden Brown with a concealed area of bright Hazel (sometimes absent) along the scapular border; under wing-coverts Cinnamon-Buff. Wing, ♂ 86-87 mm.; tail, 82-89; exposed culmen, 16-17.5; culmen from base, 20-22; tarsus, 19-20.5.

The rufous patch on the shoulder is well marked in a specimen from Colonia de Mojuy, Santarem, Pará, is present but not conspicuous in a Miriti tuba example, and is totally absent in a Villa Braga bird. The type is described by Hellmayr (1907) as having the shoulder olive brown, apparently without rufous.

Deconychura stictolaema clarior subsp. nov.

Type from Pied Saut, Oyapock, French Guiana. No. 68183 Carnegie Museum. Adult male. Collected April 1, 1918 by S. M. Klages. Original number 16438.

Diagnosis.—Top of the head a little blacker than in *stictolaema*; back somewhat more rufescent and very slightly less dusky; rump and upper tail-coverts distinctly lighter rufous; pale areas of head and under parts decidedly more buffy with the belly altogether paler; rectrices and tertials rather lighter rufescent; under tail-coverts more extensively but paler rufescent.

Description of type.—Top of the head Chaetura Black with narrow shaft streaks of pale buff, becoming obsolete on the nape or at least not as sharply defined; mantle Snuff Brown; lower back, rump, and upper tail-coverts bright Hazel. Lores dull whitish with dusky tips immediately in front of the eye; the pale shaft streaks of crown broader above the eye, forming a superciliary stripe of Tawny-Olive; auriculars like the crown; malar region with the Tawny-Olive shaft streaks broader than the dark brown edges; chin and throat

pale Clay Color with tips of Saccardo's Umber; the dark tips on the chest broader and the color of the central spots deeper, rich Tawny-Olive, sides like breast; flanks Saccardo's Umber x Tawny-Olive, with paler shaft stripes ill-defined; center of belly clear Tawny-Olive; basal under tail-coverts like belly; longer ones, embracing the distal two-thirds of the area, Sanford's Brown x Cinnamon-Rufous. Rectrices light Chestnut above, Hazel x light Russet below, with shafts Apricot Buff. Remiges fuscous; outer webs of primaries and secondaries Snuff Brown x Saccardo's Umber, becoming more rufescent toward the tips of the inner secondaries; tertials largely Chestnut x Auburn except at base of outer webs where the color is nearer Snuff Brown; upper wing-coverts Dresden Brown with a concealed area of variable intensity along the scapular border bright Hazel; under wing-coverts Cinnamon-Buff, more grayish at base of primaries. Wing, 87 mm.; tail, 89; exposed culmen, 16; culmen from base, 19; tarsus, 21.

Female like the male but smaller.

The series examined is rather consistent in coloration. One specimen from the type locality is somewhat darker below than the others, with a more olivaceous tone on the flanks, but it is still more rufescent than typical *stictolaema*. The color of the tail varies a little in the direction of a paler tone. The rufous shoulder patch is well marked in six specimens (including the type), inconspicuously present in two, barely suggested in one immature example, and absent in another young bird. The variation in size is as follows: wing, ♂ 86-90.5 mm., ♀ 75 (-79); tail, ♂ 88-95.5, ♀ 75 (-81); exposed culmen, ♂ 15-16.5, ♀ 15; culmen from base, ♂ 19-21, ♀ 19; tarsus, ♂ 20.5-22, ♀ 18.5 (-19). The measurements in parentheses are those of a specimen the sex of which is in doubt; it is marked as a male but probably is a female.

Deconychura stictolaema secunda Hellmayr.

Sittasomus stictolaemus SCLATER AND SALVIN, P. Z. S. Lond., 1873, p. 270—Chamicuros, Perú; TACZANOWSKI, Orn. Pér., 2, p. 164, 1884—Chamicuros; SCLATER, Cat. B. Brit. Mus., 15, p. 120, 1890—Amazonia (part, Ucayali).

Deconychura secunda HELLMAYR, Bull. B. O. C., 14, p. 51, 1904—Coca R., upper Río Napo, Ecuador ("♀" = ♂?); idem, Nov. Zool., 14, p. 368, 1907—Coca; idem, Field Mus. Hat. Hist. Publ., Zool. Ser., 13, pt. 4, p. 362, 1925—Coca; CHAPMAN, Bull. Am. Mus. Nat. Hist., 55, p. 462, 1926—(ex Hellmayr 1904).

Dendrocincla sp. inc. GOODFELLOW, Ibis, 1902, p. 62—Coca.

Deconychura stictolaema HELLMAYR, Field Mus. Nat. Hist. Publ., Zool Ser., 13, pt. 4, p. 362—part, Puerto Bermúdez and Chamicuros, Peru.

Diagnosis.—Similar to *D. s. stictolaema* but back less rufescent brown; under surface more olivaceous, buff spotting on the chest more distinct; wings and tail deeper rufous; shoulder patch less pronounced or more often absent.

Separable from *clamor* by the browner (less blackish) top of the head; back duller, less rufescent; rump deeper rufous; under parts more olivaceous; pale portions of throat and chest less buffy, more olive whitish.

Habitat.—Lowlands of northeastern Perú, eastern Ecuador, and extreme western Brazil (São Paulo de Olivença).

Description.—Top of the head Clove Brown with buffy shaft lines, obsolete on the nape; back light Sepia; lower back, rump, and upper tail-coverts light Bay. Lores whitish; pale shaft lines of sides of crown forming a narrow buffy superciliary line; sides of head as in *stictolaema*; chin and throat Pale Olive-Buff with tips and margins of the feathers Brownish Olive, broadest on the upper chest but narrowing to mere shaft lines on the lower breast and sides; flanks clear light Brownish Olive; mid belly a little lighter; under tail-coverts like the belly with only the tips of the longest coverts dark Hazel x Auburn. Rectrices deep Bay above, light Chestnut-Brown below, with shafts dull Salmon Color. Remiges as in *stictolaema* but darker; tertials Chestnut x Bay; under wing-coverts Pinkish Buff. Wing, ♂ 84.5-88 mm. (including Hellmayr's measurements of the type), ♀ 76.5; tail, ♂ 90, ♀ 77; exposed culmen, ♂ 19-20, ♀ 15.5; culmen from base, ♂ 25, ♀ 20; tarsus, ♂ 21, ♀ 19.

It is with very slight misgivings that I have identified one Peruvian and one west-Brazilian specimen with Hellmayr's *Deconychura secunda*. It is evident from the original description of the rufous rump and the non-rufous shoulder that *secunda* is more closely allied to *stictolaema* than to *longicauda* with which it was originally compared. On the other hand, the differences from *stictolaema* as given by Hellmayr (1907) are exactly those which distinguish my Peruvian specimen from two undoubted *stictolaema* taken on the Rio Tapajóz. The specific distinctness of *secunda* from *stictolaema* depends, therefore, solely on the measurements. If the type specimen is a female, as indicated on the label (fide Hellmayr), *secunda* might exist as a still different race of *stictolaema*, separable by its much larger size. If the specimen is wrongly sexed, it is a perfectly normal

male comparable in size to those of the other races. Since the sexes of the various forms of *Deconychura* are alike in color and since Goodfellow collected only one specimen of that genus (the type of *secunda*), the chances are extremely great that he made an error in determining the sex of that specimen, an error which afterward led to the description of *secunda* as a distinct species.

The São Paulo de Olivença bird is similar above to the Peruvian specimen, though with slightly greater rufescence on the mid back; below it is a little paler, with the throat and breast slightly buffier Light Brownish Olive; the belly is pale Buffy Brown; the wings and tail are of the same deep Bay and the other characters likewise are the same. There is no trace of rufescence on the scapular border of the wing in either specimen, in which both agree with the original description of *secunda*. Quite possibly the complete absence of rufescence on the shoulder is a constant character in this race, though variable in the others.

Deconychura stictolaema var?

Two skins from Arimã, right bank of the lower Purús, Brazil, are puzzling. Both are labeled as females although one, judging by its size, is probably a male. These specimens do not agree exactly with *stictolaema*, *clarior*, or *secunda*. The upper back is Verona Brown, more rufescent than any of the others; top of the head dark Olive-Brown with buffy shaft lines disappearing on the nape, the whole being paler than in the other races; color beneath about as in *clarior* but the under tail-coverts with rufescence only on the longer distal feathers, about as in *secunda*; rump and upper tail-coverts in one specimen a little darker than in *secunda*, in the other about as in *clarior*; rectrices and tertials of one example deep Bay as in *secunda*, of the other light Chestnut as in *clarior*; shoulder without rufescence.

Geographically, these birds should belong to typical *stictolaema*; taxonomically they are closer to *clarior* and *secunda*. Until more material is available from this particular region it is best to leave their subspecific assignment in abeyance.

Specimens examined (in Carnegie Museum unless otherwise specified).

D. l. longicauda—Brazil: Manacapurú, Rio Solimões (nearly topotypical) 2 ♂♂; Tonantins, Rio Solimões 2 ♂♂; Obidos, Pará 2 ♂♂; 1 "♀"= ♂?. French Guiana: Pied

Saut, Oyapock 9 ♂♂ 3 ♀♀; Tamanoir, Mana R. 3 ♂♂ 2 ♀♀; Cayenne 1 ♀.

D. l. pallida Brazil: Iyutanahán, Rio Purús 5 ♂♂ (incl. type) 1 "♂" = ♀?; Nova Olinda, Rio Purús 1 ♂; Arimã, Rio Purús 2 ♂♂ 1 ♀; Villa Braga, Rio Tapajoz 1 ♂ 1 "♂" = ♀?; Miriti-tuba, Rio Tapajóz 1 "♂" = ♀?; Colonia de Mojuy, Santarem, Pará 1 ♂; Benevides, Bragança R.R., Pará 1 ♂ 1 ♀; São Paulo de Olivença, Rio Solimões 2 ♂♂ 1 ♀.

D. l. connectens Perú: Puerto Bermúdez 1 ♂ (type).[1] Ecuador: Sabanilla, Río Zamora, Prov. Loja 1 ♂;[2] Cutucuo, Macas region 1 ?.[2]

D. l. minor– Colombia: El Tambor, Santander 1 ♂ (type) 1 ♀.

D. l. typica - Costa Rica: Palmar 1 ♂;[1] El Pozo de Terraba 1 ♂ 1 ♀.

D. s. stictolaema—Brazil: Villa Braga, Rio Tapajóz 1 ♂; Miri-tituba, Rio Tapajóz 1 ♂; Colonia de Mojuy, Santarem, Pará 1 ♂.

D. s. clarior—French Guiana: Pied Saut, Oyapock 3 ♂♂ (incl. type); Tamanoir, Mana R. 3 ♂♂. Brazil: Cayari Is., Uassa Swamp 1 ♂ 1 "♂" = ♀?; Obidos, Pará 1 ♂ 1 ♀.

D. s. secunda—Perú: Puerto Bermúdez 1 ♀.[1] Brazil: São Paulo de Olivença, Rio Solimões 1 ♂.

D. stictolaema var?—Brazil: Arimã, Rio Purús 1 ♀ 1 "♀" = ♂?.

Note — Since the above account was put in type, a new race of *D. longicauda* has been described from Darién, Panamá, as *D. typica darienensis* Griscom, Bull. Mus. Comp. Zool., **69**, p. 172, April 1929. Without having examined the type and only specimen of this race it is impossible to speak with absolute certainty, but I suspect that a series from eastern Panamá would show a considerable lessening of the ascribed differences from *typica*. The blackish borders and deep buff central spots of the throat and chest are characters of *typica*, the amount of rufescence on the shoulder is a variable feature, and while the size is somewhat smaller than recorded for *typica* the difference is slight in such a variable species. The fact that specimens from Almirante, w. Panamá, were identified as *minor* (Griscom, Am. Mus. Novit., **293**, p. 1, 1928), indicates the extreme variability of the group in Panamá as elsewhere.

[1]Specimen in Field Museum of Natural History, Chicago.

[2]Specimen in American Museum of Natural History, New York.

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A NEW RODENT FROM THE GALAPAGOS ISLANDS

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A NEW RODENT FROM THE GALAPAGOS ISLANDS

BY WILFRED H. OSGOOD

The Crane Pacific Expedition of Field Museum, which is now working in the East Indies, made a brief stop in the Galapagos Islands on its outward voyage in the early part of the present year. At this time, largely through the energy of Mr. Frank Wonder, taxidermist of the expedition, an excellent series of rodents was obtained including three species, one of which proves to be quite unknown and so distinct from the others as to be of considerable interest. A discovery of this sort is somewhat surprising in view of the number of parties that have touched at the islands in recent years. It is also fortunate that it is made now, for the spread of house rats makes the extinction of such restricted types increasingly probable.

In 1835, when Darwin visited the Galapagos Islands, he found a native mouse inhabiting Chatham Island and supposed it to be the only indigenous mammal of the islands. This species was described as *Mus galapagoensis* by Waterhouse (Zool. Voy. Beagle, Pt. II, Mammalia, p. 65, pls. XXXIII-XXXIV, 1839) who adds Darwin's notation as follows: "This mouse or rat is abundant in Chatham Island. I could not find it on any other island of the group." From this it is evident that Darwin made an effort to obtain further rodents, but his narrative seems to indicate that he did not spend any time on Narborough and Indefatigable islands, the principal ones from which specimens have been taken subsequently.

Since Darwin's time, no one appears to have collected any mammals on Chatham Island and the species discovered by him has not been taken again with certainty; but in 1892 a closely allied or possibly identical species was described as *Oryzomys bauri* from Barrington Island by J. A. Allen (Bull. Am. Nat. Mus. Hist., 4, p. 48, 1892). Further specimens of this species were obtained by Heller and Snodgrass in 1898 and are now preserved in the collection of Stanford University.

In 1899, a very distinct species, *Oryzomys indefessus* from Indefatigable Island, was described by Thomas (Ann. & Mag. Nat. Hist., (7), 4, p. 280, Oct. 1899). Following this in 1901 a well-marked species allied to *indefessus* was described as *Nesoryzomys narboroughi* by Heller (Proc. Calif. Acad. Sci., (3), 3, p. 242, 1901). The genus *Nesoryzomys* was at this time erected by Heller to include *indefessus* and *narboroughi*.

The species described below, for which the name *darwini* seems appropriate, brings the total for the islands to at least four and possibly five distinct forms. These divide into three groups (1) *galapagoensis* and *bauri*, which differ from each other only slightly or not at all and which belong to the typical section of the genus *Oryzomys*; (2) *indefessus* and *narboroughi*, which belong to an aberrant section of the oryzomyine series and are individually well distinguished in color but sufficiently similar otherwise so that they may have been derived the one from the other in comparatively recent times; and (3) *darwini*, which has general relationship to *indefessus* and *narboroughi* but differs from them much more than they differ from each other. It lives side by side with *indefessus* on Indefatigable Island, indicating a distinction of long standing.

With the addition of *N. darwini* to the other forms above-mentioned, the rodents of the islands take on considerably more importance than formerly and will doubtless need serious consideration in speculation regarding the derivation of the insular fauna. Until thorough study of mainland forms is made, however, no satisfactory conclusions are to be expected. While the oryzomyine rodents are widely distributed and greatly varied in South America, they are also highly developed in Central America, and no competent study of the whole group has yet been undertaken. When such a study is made, it may be possible to determine something more than the general affinity of the insular and continental forms. At present, it cannot be affirmed even that the nominal genus *Nesoryzomys* is confined to the Galapagos, for at least in some of its characters it is closely paralleled by certain forms of the mainland. However, the number and diversity of the island rodents may perhaps be taken as indicating that their existence on the islands is not an accidental matter and the view is somewhat substantiated that the present land area has been reduced from former larger proportions. Furthermore, it seems quite certain that before the introduction of house rats the native rodents were more generally distributed throughout the different islands of the group than at present.

Nesoryzomys darwini sp. nov.

Type from Academy Bay, Indefatigable Island, Galapagos Islands. No. 30830 Field Museum of Natural History. Adult female. Collected Jan. 12, 1929 by Frank C. Wonder. Orig. No.82.

Diagnosis.—Differs from *N. indefessus* and *N. narboroughi* in decidedly smaller size and in bright fulvous coloration which extends to the entire underparts; skull slender and without sharp ridges or angles.

Color.—Predominating body color Cinnamon Rufous of Ridgway; upper parts with a plentiful mixture of blackish producing a general effect of Mars Brown or darker; the blackish uniformly distributed but not producing the common oryzomyine appearance of fine lines; sides but slightly lighter than back; underparts clear Cinnamon Rufous throughout, the plumbeous basal color almost wholly concealed; ears thinly haired, brownish without, rufescent or creamy within, a tuft of clear rufescent at the upper bases; feet dull whitish tinged with rufescent proximally; tail dusky above, dull whitish below.

Skull.— General form slender and elongate; zygomata compressed anteriorly; nasals very long, their posterior endings about even with lacrymals; interorbital region somewhat less constricted than in *N. indefessus*, but with rounded edges; braincase smoothly rounded; interparietal small; palate extended posteriorly beyond molars and with a single minute foramen between last molar and interpterygoid fossa; teeth of good size and usual oryzomyine pattern.

Measurements.— Adult male and female (type), respectively: Total length 222, 204; tail vertebrae 89, 91; hind foot 27, 25. Skull of type: Greatest length 30; basilar length 22.3; zygomatic breadth 14.6; interorbital constriction 4.3; breadth of braincase 12.2; nasals 12.6; interparietal 8x2; postpalatal length 11.3; diastema 7.8; upper toothrow 4.8.

Remarks.—Three specimens of this new form were collected by Mr. Wonder at Academy Bay January 12, and one more at Conway Bay January 16. On the same dates, twelve examples of *N. indefessus* were taken at Academy Bay and thirteen at Conway Bay. This and the fact that *darwini* has heretofore eluded capture indicate that it is much less numerous than *indefessus*.

It is readily recognizable by its small size and rufescent coloration. It possesses all the general characters of *indefessus* and *narboroughi* such as may be of generic or subgeneric significance. Externally, these characters include soft, dense pelage, relatively short tail, broad hind feet, reduced plantar tubercles, and markedly granulated soles. The skulls are characterized by elongate form, constricted interorbital region without marked ridges, and by a rather wide interpterygoid fossa between which and the last molars the "lateral pits" so characteristic of typical *Oryzomys* are reduced in size and depth producing an appearance of the back of the palate seldom seen in mainland forms.

Taken collectively, these characters may be of generic importance and, at least for the present, the genus *Nesoryzomys* may be considered as consisting only of the three species inhabiting the Galapagos Islands. Nevertheless, it should not be forgotten that present day generic distinctions among Neotropical rodents are on a basis which future investigation may not substantiate. In other words, it is more conservative to speak of the rodent fauna of the Galapagos as consisting of four peculiar species than as of one peculiar genus.

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BIRDS OF THE JAMES SIMPSON-ROOSEVELTS ASIATIC EXPEDITION

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BIRDS OF THE JAMES SIMPSON-ROOSEVELTS ASIATIC EXPEDITION

BY C E HELLMAYR

The present paper gives an account of the ornithological results of the James Simpson-Roosevelts Asiatic Expedition, undertaken under the auspices of Field Museum of Natural History by Messrs. Theodore and Kermit Roosevelt in 1925. The sons of the former president were accompanied by the veteran naturalist and explorer Mr. George K. Cherrie. While bird-collecting was not the principal aim of the expedition, Mr. Cherrie nevertheless succeeded in accumulating a considerable collection of specimens. The number of species that can be obtained on a hurried trip through difficult mountainous country necessarily constitutes but a small fraction of the actual bird-life, but considering all circumstances Mr. Cherrie deserves full credit for what he accomplished within a few months' time.

Besides the material enumerated on the succeeding pages, the Museum received from the expedition two other lots of bird skins, i.e. one, consisting of 36 species, from the Allapalli Forest, near Chanda, Central Provinces, and a still smaller one from the Nepal Terai, India. As they do not call for any comment, they have not been included in this paper, which thus deals exclusively with the birds collected in Kashmir, Ladak, and Eastern Turkestan (Sinkiang).

The expedition left Srinagar, the capital of Kashmir, May 19, 1925, and followed the Ladak route to Leh, whence it ascended the Nubra Valley, crossed the Karakoram Range, and proceeded via Sughet Pass down the Sanju River to Karghalik and Yarkand. There Mr. Cherrie separated from the rest of the party, and worked slowly northwards along the Yarkand River to Maralbashi, Aksu, and Kisil Bulok, in the southern foothills of the Tian Shan. After crossing the Musart Pass, he collected for several weeks in the vicinity of the upper Tekes River, Tian Shan. About the middle of September, the expedition set out on its return journey and retraced its steps to Maralbashi, whence Mr. Cherrie turned west to Kashgar, and over the Shurbulak Pass reached Irkeshtan early in November.

The list of the localities given below, arranged in chronological order from Mr. Cherrie's diary, will assist, it is hoped, in locating the approximate situation even of those places which are not to be found on any map.

Srinagar, Kashmir	May 19
Kangan, Sind Valley	May 20
Gund	May 21-23
Sonamarg	May 23
Baltal	May 23-24
Zogi La (Pass over the Great Himalayan Range)	May 25
Matayan, Ladak	May 25
Pandras, Gumber River	May 25
Dras	May 26
Shimsa Kharbu, Dras River	May 26
Kargil	May 27
Bod Kharbu	May 28
Lotsun, Wakka-Chu River	May 28
Moulbekh	May 28, 29
Fotu La	May 30
Lamayuru	May 30
Nurle, Indus Valley	May 31
Leh	June 1- 4
Khalsar	June 9
Taghar, Nubra	June 9
Panamik, Nubra	June 11-14
Sughet Pass	June 26, 27
Sughet Karaul	June 27
Ali Mazar, Kurghan, Karakash Valley	June 30
Ayalik, Sanju River	July 2- 3
Tam Karaul, Sanju River	July 3
Sanju Bazar, Sanju River	July 6
Koshtagh, Kilian River	July 6
Karghalik	July 8
Yarkand	July 12
Echitgo (Carshamba Bazar)	July 16, 17

Mesha Yakshamba Mazar July 17
Lailik-ötang July 18
Abad (Charshamba Bazar) July 19
Aka-dong, Yarkand River July 19-20
Alager, Yarkand River July 20
Maralbashi July 21
Aksak-märal July 21
Shamal July 23
Maralbashi July 24-29
Conishar, about six miles n.e. of Aksu Aug. 7- 9
Abad, alt. 4,900 feet, southern foothills of Tian Shan Aug. 13
Kisil Bulok, alt. 6,300 feet, southern foothills of Tian Shan Aug. 13
Autain Bulok, South Musart River Aug. 15
South foot of Musart Glacier Aug. 16-17
Han Aulik, North Musart River, Tian Shan . . Aug. 18-19
Eidinka, North Musart River Aug. 21
Shatta, Tekes River Aug. 23-28
Ox-su, Ox-su River, Tekes Valley Aug. 29-31
Simtash, above the canyon of the Agijas River, Tekes Valley Aug. 31, Sept. 1
Agijas, Tekes Valley Sept. 2- 6
Camp Mointa River, Tekes Valley Sept. 7- 8
Near mouth of Mointa River Sept. 8-11
Shatta, Tekes River Sept. 13
North Musart River, alt. 8,600 feet Sept. 13
Top of Musart Glacier, alt. 11,800 feet Sept. 14
South foot of Musart Glacier, alt. 8,600 feet . . Sept. 15
Kailik, alt. 7,500 feet Sept. 16
Kisil Bulok, alt. 6,300 feet Sept. 16-17
Abad, alt. 4,900 feet Sept. 19
Aksu Sept. 20
Yaka-kuduk Sept. 22-23
Tumshok Sept. 24
Oku Mazar Sept. 25, 26

Maralbashi	Sept. 26-28
Kashgar	Oct. 6-21
Aktam, Kashgar River	Oct. 29
Shurbulak Pass, on road to Irkeshtan	Nov. 1

The region in which the expedition worked had previously been visited by several naturalists. The foremost collections are those made in the early seventies of last century by the two Yarkand Missions under T. D. Forsyth, whose ornithological results were reported upon by Henderson and Hume, Scully, and Sharpe. Other contributions to the ornithology of the Tarim basin are due to Menzbier, Przewalski, and Schalow, while Dr. W. L. Abbott's travels added considerably to our knowledge of the bird-life of the western Himalayas and Eastern Turkestan. In the Tian Shan Mountains, Severtzow, Almásy, and Merzbacher secured extensive collections. Kashmir and Ladak have lately attracted the attention of various ornithologists, among whom Meinertzhagen, Osmaston, and Whistler may particularly be mentioned. A complete bibliography of the more important faunal papers[1] consulted in the preparation of this memoir will be found at the end.

The bulk of the collection, excepting certain easily identifiable species, has been worked out in the spring of 1928 at the British Museum (Natural History), where the unrivalled series of Indian birds were generously placed at my disposition by Dr. Percy R. Lowe and Mr. Norman B. Kinnear. Additional pertinent material was examined in the Tring Museum and in Col. R. Meinertzhagen's private collection. Subsequent visits to the museums at Paris and Munich enabled me to compare part of M. Babault's collection from the Himalayas and Prof. Merzbacher's large series of Tian Shan birds. Through the courtesy of Dr. C. W. Richmond, numerous specimens from the Abbott collection, preserved in the U. S. National Museum, have been transmitted to me for study, and Mr. Outram Bangs, of the Museum of Comparative Zoology, Cambridge, Massachusetts, aided my work by lending Chinese material needed for comparison. To all of these gentlemen my heartfelt thanks are due, and to Mr. Kinnear I owe a particular debt of gratitude for his unfailing kindness and constant advice while working at the British Museum as well as for much information supplied during the preparation of the manuscript after my return to the United States.

[1]Unfortunately, two papers by Sarudny on the birds of Pamir (Ann. Mus. Zool. Ac. Sci. St. Pétersb., 1914, pp. 439-477; Bull. Mosk. Naturf. Ges., Biol. Abt., 35, 1926, pp. 283-290) and his numerous contributions to the journal of the Turkestan Section of the Russian Geographical Society have been inaccessible.

I also wish to express my indebtedness to Mr. Charles Westcott, of Springfield, Mass., who took great pains in revising the manuscript and checking the spelling of geographical names.

Corvus macrorhynchos intermedius Adams. Himalayan Jungle Crow.

Corvus intermedius ADAMS, P.Z.S. Lond., 27, p. 171, 1859—"Valley of Cashmere and eastwards, on the ranges near the European stations at Dughai and Simla."

KASHMIR: Kangan, Sind Valley, ♀ ad. (breeding), May 20, 1925.—Wing 335 mm.

Agreeing with specimens from Kashmir in the British Museum and those obtained by W. L. Abbott in the U. S. National Museum. The latter were referred by Richmond (p. 457) to *C. macrorhynchos levaillanti*, now admitted to be a different form which is peculiar to the plains of eastern India, and whose range does not extend beyond the Sutlej Valley in the west.

C. m. intermedius ranges from Gilgit and Baltistan south to Kashmir and Attak on the Indus (N. W. Frontier Province), and thence west of the Great Himalayan Range through Simla and Nepal to Sikkim. It is common throughout the Sind Valley up to the Zogi La,[1] but does not cross into Ladak.

Both Stresemann[2] and Meinertzhagen[3] include "Chinese Turkestan" in the distributional area of the Himalayan Jungle Crow, without good reasons, it seems to me. This extension appears to be based on Scully's record (p. 157) of "*C. culminatus*" from Yarkand, which was shown by Sharpe (p. 18) to belong to the Carrion Crow, and on Hume's reference[4] to "*C. intermedius*" of certain specimens secured in the same locality by Henderson. Hume, however, was fairly confused about these crows, and no reliance can be placed on his conclusions, since he also attributed Ladak birds to *C. intermedius*, which, of course, must have been *C. c. orientalis*.[5]

Birds from western China (Kansu and Szechwan) are apparently not separable from *C. m. intermedius*. The only difference I can dis-

[1]From Parrot's remarks (Verh. Orn. Ges. Bay., 9, p. 249, 1909) it is quite evident that the specimen obtained by E. Zugmayer on the "Sadschi La" [=Zogi La] and listed as ?*C. corone orientalis* belongs to *C. m. intermedius* and not to the eastern race of the Carrion Crow. This surmise has since been confirmed by Laubmann (in litt.).

[2]Verh. Orn. Ges. Bay., 12, p. 283, 1916.

[3]Nov. Zool., 33, p. 83, 1926.

[4]Henderson and Hume, Lahore to Yarkand, p. 237, 1873.

[5]The single male obtained by Bonvalot and Prince Orléans at Chaklik, Lob Nor region, and listed by Oustalet (1894, p. 53) as "*Corone macrorhyncha*" cannot be properly allocated without careful reexamination.

cover is their very slightly larger bill;[1] but the material at hand being inadequate, the status of *C. m. tibetosinensis* Kleins. and Weigold[2] must be left in abeyance for the present.

It is perhaps safer to use *C. macrorhynchos* as specific term for the Jungle Crow until the relationship of this group to the Australian species has been more thoroughly investigated.

C. m. intermedius is distinguished, without difficulty, from the Carrion Crow by stouter bill, smoother nuchal feathers with whitish (instead of gray) bases, and shorter (less lanceolate) throat feathers with oily greenish (instead of purplish) gloss.

Corvus corone orientalis Eversmann. Eastern Carrion Crow.

Corvus orientalis EVERSMANN, Addenda Pall. Zoogr., fasc. 2, p. 7, 1841—"circa fluvium Narym, ultra oppidum Buchtarma."

LADAK: Shimsa Kharbu, Dras River (alt. 9,700 ft.), ♀ ad. (breeding), May 26, 1925.—Wing 330 mm.

CHINESE TURKESTAN: Lailik, Yarkand River, ♂ ad., ♀ ad. (in worn breeding plumage), July 18, 1925; Kashgar, ♂ ad. (just completing the annual molt), ♀ (first annual), Oct. 9, 14, 1925; Conishar, six mi. northeast of Aksu, ♂ ad. (in full molt), Aug. 8, 1925; Agijas, Tekes Valley, Tian Shan, ♀ ad. (in full molt), Sept. 5, 1925.

The Kharbu bird, which has been carefully compared in the British Museum with an ample series of *C. m. intermedius* from Gilgit, Kashmir, and Murree, is undoubtedly referable to *C. c. orientalis*. Owing to its somewhat worn condition, it shows less purplish gloss on throat and foreneck, but apart from this it agrees in every other detail, particularly in shape of bill and structure of nuchal and throat feathers, with Turkestan examples. It thus appears that *C. m. intermedius* is not found east of the Great Himalayan Range, and that all crows from Ladak, including Osmaston's (Ibis, 1925, p. 672), Ludlow's (Journ. Bomb. Nat. Hist. Soc., **27**, p. 141), and Wathen's (Journ. Bomb. Nat. Hist. Soc., **29**, p. 696) records of the Jungle Crow, should be referred to *C. c. orientalis*, as has already been intimated by Meinertzhagen (Ibis, 1927, p. 368).

C. c. orientalis is evidently the only Crow breeding in Chinese Turkestan, where it was collected by Henderson, Scully, Stoliczka (see Sharpe, under the name *C. corone*, p. 18), Abbott (Richmond, p. 572—Yarkand and Uchturfan), and Zugmayer (Parrot, p. 249—Khotan).

[1]See also Riley, Proc. U. S. Nat. Mus., **70**, art. 5, p. 62, 1926.

[2]Abhandl. Ber. Zool. Anthr.-Ethnog. Mus. Dresden, **15**, No. 3, p. 2, 1922.

Corvus corone sharpii Oates. Sharpe's Hooded Crow.

Corvus sharpii OATES, Faun. Brit. India, Birds, 1, p. 20, 1889—"Siberia, Turkestan, Afghanistan and a portion of India"; type locality Siberia.

CHINESE TURKESTAN: Aktam, Kashgar River, west of Kashgar, one ♂ ad., two ♀ ♀ ad., October 29, 1925.

A winter visitor from the north. Scully (p. 156) found the Hooded Crow common at Kashgar and Yarkand from October to March, and specimens were also collected by Stoliczka, when with the Yarkand Mission, at the same places as well as at Sanju in November, 1873 and January, 1874. Besides, it has been met with in winter time in Gilgit, Baltistan, and in the Tian Shan. Its breeding range extends from the Ural Mountains and the Caspian Sea throughout the plains east to the Yenisei and Lake Baikal.

It is now generally agreed that Carrion Crow and Hooded Crow, long separated specifically, are merely races of a single systematic unit.[1]

Corvus frugilegus tschusii Hartert. Eastern Rook.

Corvus frugilegus tschusii HARTERT, Vog. Pal. Fauna, 1, p. 14, Nov., 1903—Gilgit.

CHINESE TURKESTAN: Kashgar, ♀ ad., Oct. 24, 1925.

The bird agrees with the type and a series of winter birds from Turkestan and the Vale of Kashmir. Every one of these twelve specimens has a much slenderer and decidedly longer bill than any of the eighty-six skins in Field Museum from Germany, Italy, and other parts of Europe, and the constancy of this feature seems to indicate that *C. f. tschusii* is a perfectly valid form. Birds from Turkestan, including two collected by W. L. Abbott at Uchturfan on November 15, 1893, are on average less glossed with purple below than those from Gilgit and Kashmir, but the same, if not more, variation may be observed in our series of the European Rook, and I do not believe they can possibly belong to *T. f. ultimus* Sushkin[2], of the Altai region.

The Rook is a winter visitant in Turkestan. Scully (p. 157), who met with it in winter about Kashgar and Yarkand, tells us that in the beginning of April the birds migrate northward, and are said to breed in the hills near Aksu. The Second Yarkand Mission, as recorded by Sharpe (p. 15), secured a number of specimens during

[1]See W. Meise, Journ. Orn., 76, pp. 1-150, pls. I-IV, 1928.

[2]List and Distribution of Birds of the Russian Altai etc., p. 65, 1925—Katunskoie, distr. of Biisk.

the cold season in the plains of Kashgaria, and Dr. Abbott (see Richmond, p. 571) shot a couple at Uchturfan.

The breeding area of the Eastern Rook is supposed to extend from northern Persia through the plains of Turkestan and Siberia east to the Irtysh[1].

Coloeus monedula soemmeringii (Fischer). Eastern Jackdaw.

Corvus soemmeringii FISCHER, Mém. Soc. Natur. Moscou, **1**, p. 3, pl. 1, 1811—Moscow, Russia.

CHINESE TURKESTAN: Conishar, six mi. northeast of Aksu, ♂ (first annual, molting), Aug. 9; Shatta, Tekes Valley, Tian Shan, ♀ ad. (molting), Aug. 24; Agijas River, Tekes Valley, ♂ ad. (molting), Sept. 3, 1925.

These specimens—undoubtedly breeding birds—are indistinguishable, in size as well as coloration, from a series collected at Skoplje, Macedonia (topotypical of *collaris*), in Field Museum. The only measurable example has a wing of 235 mm., while other Turkestan skins in the British Museum and Munich collections vary between 220 and 240 mm. Therefore, I cannot but agree with Meinertzhagen[2] that *C. ultracollaris* Kleins[3]. is inseparable from *C. m. soemmeringii*. The type—with a wing of 255 mm.—must have been an individual variant of unusually large size.

According to Scully (p. 158), the Jackdaw visits Kashgar and Yarkand only in winter, but breeds in the Aksu forests, where one of our specimens was actually taken. The Second Yarkand Mission also met with it, likewise in winter, at various localities in the Yarkand plains, and Dr. W. L. Abbott secured a single adult male, in November, 1893, at Uchturfan, as recorded by Richmond (p. 572).

Pica pica bactriana Bonaparte. Kashmir Magpie.

Pica bactriana BONAPARTE, Consp. Av., **1**, p. 383, 1850—exclusively based on *Pica caudata* Blyth, Cat. B. Mus. Asiat. Soc., 1849, p. 91, spec. E, Kandahar, Afghanistan (not "eastern Persia," as stated by Bonaparte).

LADAK: Kargil (alt. 8,800 ft.), ♂ ad., May 27; Nurle, Indus Valley (alt. 11,000 ft.), ♀ ad. (breeding), May 31; Leh, ♂ ad., June 3, 1925.—Wing 213-216 mm.

All are adult birds with the first primary decidedly falcate and edged with blackish along the outer web only. The blackish edging

[1]Baker (Fauna Brit. India, 2nd ed., Birds, **1**, p. 30, 1922) attributes a nest with eggs taken by a native collector in Ladak to this species, but as the Rook has not been found breeding there by anybody else, this record requires corroboration by more substantial evidence.

[2]Nov. Zool., **33**, pp. 75-76, 1926; Ibis, 1927, p. 369.

[3]Falco, **14**, No. 2, "1918," p. 16, pub. April, 1919—Narynsk, Tian Shan.

to the other primaries, though somewhat variable, is always more restricted than in any of our twenty-four European specimens, from which the Ladak birds, in addition, differ by longer, more greenish tail and less bluish secondaries. In dimensions as well as in coloration and wing markings, they appear to me indistinguishable from Baluchistan (Kalat) and east-Persian examples, and I do not see how *P. p. laubmanni* Stres.[1] can be maintained. Stresemann obviously mistook birds from Turkestan for *P. p. bactriana* and, while correctly recognizing the differences, named the wrong form. Dr. Richmond kindly sent me the three examples listed by him (p. 458) as *P. pica* in the report on Dr. Abbott's collection. The male from Dras is an adult bird with narrow, strongly falcate first primary. In the extent of black on the primaries, it agrees with our specimen from Kargil. The two others, both from Baltistan, are birds of the first year with broader, black-tipped first primary and much more extensive black markings on the other primaries. As pointed out by Stegmann[2], this is merely a matter of age. All of Abbott's skins are doubtless referable to *P. p. bactriana.*

P. p. bactriana is widely distributed in Ladak, north to Nubra and east to the vicinity of Pangong Lake.[3] It is found in small numbers in Baltistan (down the Dras River to Skardu), but does not occur in Kashmir proper.[4] Its occurrence in Kumaon, the Simla Hills, and Garhwal, included by Baker in its range, appears to be open to doubt. In the west, it stretches through Baluchistan and Afghanistan into Persia and, according to Stegmann, through the lowlands of Russian Turkestan and Transcaspia into the southeastern provinces of European Russia.

Pica pica hemileucoptera Stegmann. Turkestan Magpie.

Pica pica hemileucoptera STEGMANN, Ann. Mus. Zool. Acad. Sci. U.R.S.S., 28, p. 372, 1927 —Nishneudinsk, Siberia.

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, ♂ (end of juvenile molt), Sept. 3, 1925.

In addition, I have been able to examine a number of adults from the Tian Shan in the Munich Museum. The distinctions pointed out by Stegmann hold good, when birds in corresponding plumage are compared.

[1]Journ. Orn., 76, p. 342, 1928—Kalat, Baluchistan.

[2]Ann. Mus. Zool. Acad. Sci. U.R.S.S., 28, pp. 368-369, 1927.

[3]Babault (Mission, Rés. Scient., p. 132, 1920) erroneously refers the Magpies collected in Ladak to two different races, viz. *P. p. bactriana* and *P. p. bottanensis.*

[4]See Osmaston, Journ. Bomb. Nat. Hist. Soc., 31, No. 4, p. 977, 1927.

The distribution of *P. p. hemileucoptera* having been discussed at length by Mr. Stegmann, we need not dwell any further on the subject. Although specimens are not available for examination, it is hardly doubtful that the Magpies observed (or collected) by Henderson (p. 240), Scully (p. 158), and Stoliczka (Sharpe, p. 19) in the Sanju region on the southern border of the Tarim basin belonged to *P. p. hemileucoptera* rather than *P. p. bactriana*, since the latter is not likely to cross the Karakoram Range to the north. The two adult males from Kashgar, recorded by Richmond (p. 572) s.n. *P. pica leuconotos*, are typical of *hemileucoptera*, and have decidedly narrower blackish margins to the inner web of the outer primaries than even the bird from Leh, mentioned under the preceding heading, with the least amount of black on the wings.

Nucifraga caryocatactes rothschildi Hartert. Tian Shan Nutcracker.

Nucifraga caryocatactes rothschildi HARTERT, Vog. Pal. Fauna, 1, Part 1, p. 27, Nov., 1903—south of Issik-kul, Tian Shan.

CHINESE TURKESTAN, TIAN SHAN: Eidinka, North Musart River, ♂ ad., ♀ ad., Aug. 21; Shatta, Tekes River, ♀ ad., Aug. 25; Agijas River, Tekes Valley, ♂ ad., ♀ ad., Sept. 5; Mointa (alt. 7,500 ft.), Tekes Valley, ♂ ad., Sept. 7, 1925.

All of these specimens are adult, as evidenced by the squarely rounded tips and short white apical spots of the lateral rectrices. They are just finishing their annual molt; four birds have completed the renewal of the flight quills, and show but a few pin-feathers in the body plumage, while in two others (♂, Eidinka; ♀, Shatta) some of the rectrices and outer primaries are still in the process of molting. This condition tends to indicate that the Tian Shan Nutcracker breeds at a later period than its European ally.

N. c. rothschildi is easily distinguished from the Siberian form (*N. c. macrorhynchos*) by much darker, more blackish brown coloration and larger white spotting on the lower parts. The wing measures as follows: males, 195, 197, 200; females, 193, 203 mm. Five (out of six) specimens have, in opposition to Hartert's description, very distinct, though narrow white apical edges to the median quill feathers. One of the skins has a number of small white spots on the rump, another distinct white tips to some of the upper tail coverts—suggesting an approach to *N. c. multipunctata*, of the northwestern Himalayas, which, however, has much more white in the tail, much larger white spots both above and below, and white-spotted rump and upper tail coverts, not to mention some minor differences. The

breeding range of *N. c. rothschildi* is apparently restricted to the Tian Shan system, east at least to the Bogdo-ola Range,[1] and stretching west to the Ferghana Range.[2]

Pyrrhocorax pyrrhocorax himalayanus (Gould). Himalayan Red-billed Chough.

Fregilus himalayanus GOULD, P.Z.S. Lond , 1862, p. 125—Himalayas.

LADAK: Bod Kharbu (alt. 10,400 ft.), two ♂♂ ad., May 28; Panamik, Nubra, ♂ ad., June 14; Sughet Valley (alt. 14,600 ft.), ♂ ad., end of June, 1925.

CHINESE TURKESTAN, HILL YARKAND: Ayalik, Sanju Valley (alt. 13,000 ft.), ♂ ad., July 2, 1925.

The birds taken in June are beginning to molt. The two males from Kharbu—the only ones with measurable wings—are somewhat smaller (wing 300 and 305 mm.) than the figures given by Meinertzhagen (Ibis, 1927, p. 372) for a series of skins from Ladak and Sikkim; while not appreciably larger than European specimens, they differ by having the wings and tail glossed with bluish rather than greenish. The distance between the fifth and sixth primaries is from 15 to 20 mm.

Birds from the Tian Shan (*P. p. centralis* Stres.[3]) appear to be separable by narrower primaries and tail feathers as well as by more pointed wings, the distance between the tips of the fifth and sixth primaries ranging from 25 to 30 mm. In measurements and coloration, the Tian Shan specimens in Field Museum are not different from *himalayanus*, so far as I can see.

The Red-billed Chough is a common resident throughout the alpine regions of the Himalayas, southern Tibet, and western China.

[1]See Pleske, Bull. Acad. Sci. St. Pétersb., nouv. sér., 3, p. 119, 1892.

[2]Stolzmann's comments (Bull. Soc. Natur. Moscou, nouv. sér., 11, p. 58, 1897) on four Nutcrackers obtained by T. Barey, in May, 1895, at "Tarta-Koule" and "Savayardyne," 200 versts northeast of Gulcha, leaves hardly any doubt as to their identity with the form under discussion. Laubmann's suggestion (Abhandl. Bayr. Ak. Wiss., Math.-phys. Kl., 26, No. 3, p. 41, 1913) that they might be referable to *N. c. multipunctata* does not seem to be well founded in view of the fact that this last-named race has never been found outside the Indian Empire, being evidently restricted to the northwestern Himalayas.

[3]Journ. Orn., 76, p. 344, 1928—Mountains near Jarkent, Semiryechensk, Turkestan.

Pyrrhocorax graculus forsythi Stoliczka. Eastern Yellow-billed Chough.

Pyrrhocorax forsythi STOLICZKA, Stray Feathers, 2, p. 462, 1874 between Lamayuru and the Indus, Ladak.

LADAK: Panamik, Nubra, ♂ ad., June 12, 1925

CHINESE TURKESTAN: Upper Sanju Valley (alt. 13,000 ft.), Hill Yarkand, ♂ ad., July 2; foot of Musart Glacier, Tian Shan (alt. 8,600 ft.), two ♂♂ ad., Sept. 15; top of Musart Glacier (alt. 11,800 ft.), Sept. 14, 1925.

Compared with a series from the Bavarian Alps (Schöntel, Algäu) in Field Museum, these birds are considerably larger and have stouter as well as longer bills. The same divergency having been noted by Whistler (Ibis, 1925, p. 164) and Meinertzhagen (Ibis, 1927, p. 373), it seems appropriate to keep the Central-Asiatic birds separate under Stoliczka's name, although this author's description, based on a single young bird with dark feet and partly brown bill, is altogether misleading.

The length of the wing in Bavarian males varies from 248-267; in those from Ladak and Turkestan, from 280-290 mm.

The Yellow-billed Chough is sparingly diffused throughout the western Himalayas from Baltistan and Kashmir to Lahul. It is perhaps more common in Turkestan, specimens having been taken in Sarikol by Abbott[1], north of Shahidula in the upper Karakash Valley and at Sasstekke, near Kashgar, by the members of the Second Yarkand Mission[2], at Tam, Sanju Valley by Scully,[3] and in the Tian Shan Mountains by Russow, Merzbacher, and others.

Podoces hendersoni Hume. Henderson's Chough-Thrush.

Podoces hendersoni HUME, Ibis, (3), 1, p. 408, 1871—"collected during the Yarkand Expedition," no locality specified; HENDERSON and HUME, Lahore to Yarkand, p. 244, pl. 22, 1873—the types (two males) were obtained on the road from Sanju to Koshtagh and at Oi Tograk, in the Yarkand plains.

CHINESE TURKESTAN: Abad (alt. 4,900 ft.), northeast of Aksu, ♂ ad., ♀ ad., ♂ imm., Sept. 18, 1925.—Wing (male) 148, (female) 145 mm.

The immature bird is paler throughout, and the pileum still shows a number of the dark brown, whitish-tipped feathers of the juvenile plumage.

This striking bird is a characteristic species of the deserts of

[1] *Pyrrhocorax pyrrhocorax* RICHMOND, p. 572.
[2] *Pyrrhocorax pyrrhocorax* SHARPE, p. 22.
[3] *P. alpinus*, p. 162.

Central Asia. Originally discovered by Dr. Henderson, naturalist of the First Yarkand Mission, at the north foot of the Yarkand Hills, it was afterwards met with in the same district by Scully (p. 159) and Forsyth's party (Sharpe, p. 23), while Biddulph secured it at Tughamati, near Kashgar. Abad, where our specimens were obtained, lies in the southern foothills of the Tian Shan, south of Kisil Bulok, whence Menzbier (Ibis, 1885, p. 353) had already recorded the species. Bonvalot and Prince Orléans, as reported by Oustalet (1894, p. 46), also encountered it at the southern foot of the Tian Shan, north of the Bagrash-kul, and Schalow (1901, p. 437) lists a male secured by Holderer at Uksalur, west of Kashgar. *P. hendersoni* has been recorded, furthermore, from the Gobi Desert and Zaidam, though it appears rather doubtful from literature whether those birds have ever been directly compared with material from the Tarim basin.

Sturnus vulgaris humii Brooks. Himalayan Starling.

Sturnus humii BROOKS, Ibis, (6), 3, No. 24, p. 500, Oct., 1876—based on *Sturnus nitens* (not of Brehm, 1831) Henderson and Hume, Lahore to Yarkand, p. 250, pl. 24, Srinagar, Kashmir.

KASHMIR: Gund (alt. 7,000 ft.), Sind Valley, ♀ ad, May 21, 1925.

This well-marked race is a common breeding bird in Kashmir, where it has been met with by numerous travelers,[1] and stretches westward into the N. W. Frontier Province (Valley of Peshawar). No Starling breeds in Ladak, and although Hartert (Vög. Pal. Fauna, 1, p. 45), Jordans (Arch. Naturg., 89, A, Heft 3, p. 67, 1923), and Baker (Fauna Brit. India, 2nd ed., Birds, 3, p. 32, 1926) give its breeding range as extending east to Nepal, I cannot find in literature any authority for this statement. On the contrary, Whistler[2] emphatically denies that the Himalayan Starling breeds anywhere in the Kangra Valley, Kulu, Lahul, Spiti, the Simla Hills, or British Garhwal, but we are informed by the same naturalist that it winters in small numbers in extreme northern Punjab. Contrary to Jordans's assertion (loc. cit.), it has never been found in Sind Province.[3]

Sturnus vulgaris porphyronotus Sharpe. Purple-backed Starling.

Sturnus porphyronotus SHARPE, Ibis, (5), 6, p. 438, 1888—"Afghanistan and in winter dress from the plains of India," errore; the type is from

[1]See among others Hume and Henderson (p. 250), Sharpe (p. 25, *S. indicus*), Richmond (p. 460), and Meinertzhagen (Ibis, 1927, p. 375).

[2]Journ. Bomb. Nat. Hist. Soc., 28, p. 995, 1922.

[3]See Ticehurst, Ibis, 1922, p. 620.

Yarkand, Turkestan (see Cat. B, Brit. Mus., 13, p. 38, pl. 2, 1890).[1]

CHINESE TURKESTAN: Koshtagh, Kilian River (alt. 6,000 ft.), Hill Yarkand, ♂ ad. (nuptial), ♂ (juvenile plumage), July 6; Echitgo (Carshamba Bazar), Yarkand River, ♂ ad., ♀ ad. (worn breeding plumage), July 16; Lailik-otang, Yarkand River, ♂ ad. (worn breeding), July 18; Maralbashi, Kashgar River, two ♂♂ ad. (nuptial), ♂ juv., July 27, 28; Conishar (six miles northeast of Aksu), ♂ ad. (molting), Aug. 7; Kashgar, three ♂♂ ad., two ♀♀ ad. (winter), Oct. 13, 17, 22, 1925.

The series well illustrates the various plumages of the Turkestan Starling. The adult birds obtained on the Kilian and Yarkand rivers are in abraded breeding dress, the female from Echitgo being particularly worn. The two males from Maralbashi, shot on July 27, have just started on their annual molt, while that from Conishar, secured on August 7, has already renewed the greater part of its plumage. The birds taken in October at Kashgar wear the fresh autumn plumage, profusely spotted all over with buff and white. Aside from the presence or lack of spotting according to season, the adults are very uniform in coloration, the head all round being bronze green in abrupt contrast to the bluish or reddish purple of the back, rump, scapulars and under parts. The juvenile plumage is somewhat paler than the corresponding stage of *S. v. vulgaris*, the most striking difference being the pale creamy-buff coloration of the axillaries and under wing coverts, which are largely grayish brown in the typical race.

S. v. porphyronotus is evidently the only Starling breeding in the Tarim basin. It is doubtless the present form that was obtained by Henderson in August near Yarkand,[2] and of which Scully[3] speaks as being very common in the plains of Kashgaria. Abbott secured two adult females at Karghalik on August 12, 1893, as recorded by Richmond (p. 573); the Second Yarkand Mission met with it at Sanju, Yarkand, and Kashgar (Sharpe, p. 26); and Zugmayer shot an adult bird at "Tsarbakh," near Posgam, on May 11, 1906, as mentioned by Parrot (p. 254). It also breeds in the Tian Shan and other parts of Turkestan.

About its characters, variation, and distribution, the remarks by Hartert[4] and Jordans[5] should be consulted.

[1]Although Sharpe, in the original account, was quite confused about the range, his description is clearly referable to the purple-backed breeding form of Turkestan, and we may, therefore, accept his later designation of Yarkand as type locality.

[2]*Sturnus vulgaris* HENDERSON and HUME, Lahore to Yarkand, p. 250.

[3]*Sturnus vulgaris* Stray Feathers, 4, p. 162.

[4]Nov. Zool., 25, p. 334, 1918.

[5]Arch. Naturg., 89, A, Heft 3, pp. 51-57, 1923.

In addition to the series enumerated above, Field Museum has specimens obtained by Akulin at Narynsk, Tian Shan.

Sturnus vulgaris poltaratskyi Finsch. Poltaratsky's Starling.

Sturnus poltaratskyi FINSCH, P.Z.S. Lond., 1878, p. 712—Lake Markakul, Chinese Altai.

CHINESE TURKESTAN: Abad (alt. 4,900 ft.), ♀ ad. (winter dress), Sept. 18, 1925

This bird is totally different from the series listed as *S. v. porphyronotus*, which includes a number of skins (from Kashgar) in perfectly comparable plumage. Pileum, sides of head, and throat are reddish purple (instead of bronze green); the back and rump bright bronze green, not purple; the upper wing coverts bluish green instead of bronze or coppery purple; the under parts, below the bronze green chest band, are dark greenish blue glossed with violet on the flanks, instead of being reddish purple passing into bronze on the latter. Besides, the buff edges to the quills, wing coverts, and rectrices are much wider and brighter, while the bill is shorter and stouter. The bird closely resembles certain specimens of the European Starling in fall plumage, but has much wider, paler buff edges to axillaries and under wing coverts, and much paler, less cinnamomeous markings on the wings and tail feathers.

It is evidently a migrant from the north, and doubtless belongs to *S. v. poltaratskyi*, which breeds in western Siberia and winters in the plains of India. Richmond (p. 573) had recorded a single female taken by Dr. Abbott on October 29, 1893 in the Tian Shan, north of Kashgar, under the name of *S. v. menzbieri*, now conceded[1] to be inseparable from *S. v. poltaratskyi*. It agrees in every detail with the specimen obtained by Mr. Cherrie.

Oriolus oriolus kundoo Sykes. Indian Oriole.

Oriolus kundoo SYKES, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 2, p. 87, July, 1832—Dukhun, India.

KASHMIR: Gund (alt. 7,000 ft.), ♂ ad., May 21, 1925.—Wing 141.

CHINESE TURKESTAN: Sanju Bazar, Sanju River (alt. 6,600 ft.), Hill Yarkand, ♂ (first annual), July 6; Maralbashi, Kashgar River, ♂ ad., July 28, 1925. (Wing 144).

The adult male from Maralbashi agrees in all essential points, viz. small size, slender, elongated bill, great extent of yellow on primary coverts and lateral rectrices, and black streak behind the

[1]See Hartert (Nov. Zool., 25, p. 333, 1918) and Jordans (Arch. Naturg., 89, A, Heft 3, pp. 22-27, 1923).

eye, with specimens from Gilgit, Kashmir, and other Indian localities. Hume (Lahore to Yarkand, p. 201) had already pointed out that the birds collected by Henderson at Bora and Oi Tograk, in the plains of Yarkand, were referable to the Indian form of the Golden Oriole. The same race was later met with during the breeding season at Yarkand by Scully (p. 140); at Yarkand and Kisil by the Second Yarkand Mission (Sharpe, p. 24); at Yarkand by Abbott (Richmond, p. 573); at Chullak and Khotan by Zugmayer (Parrot, p. 253). Thus it seems to be well established that *O. o. kundoo* is the only form of oriole breeding in the Tarim basin. In the west, it ranges through the Pamir into eastern Bokhara (Bianchi, p. 368), Ferghana (Stolzmann, p. 59), and the southern districts of Sir Darya. In the last named province, Severtzow (1875, p. 191) was the first to record it from Chimkent, Tashkent, and Khojent, and he states that it mounts in the valley of the Chirchik up to nearly 7,000 feet. According to Pleske (1888, p. 15), V. Russow found it breeding at various places in the Chatkal-tau, east of Chinaz, and from the same region Alexejew secured a series in June and late in May on the Pskem River (a tributary of the Chir-lik), as recorded by Kollibay,[1] while Gyldenstolpe (p. 3) lists two females from Tashkent in a collection received by the Stockholm Museum. It also breeds in small numbers in British Baluchistan (Quetta Valley) and onward to Afghanistan (Kandahar).[2]

I do not see how Turkestan specimens—which, according to Snigirewski,[3] have been named *O. k. turkestanicus* by Zarudny and Kudashew—can be separated. The wings in ten breeding adult males measure from 140 to 147, while in Indian birds they run from 136 to 142 mm.

Oriolus oriolus oriolus (Linnaeus). Golden Oriole.

Coracias oriolus LINNAEUS, Syst. Nat., 10th ed., 1, p. 107, 1758 – Europe, sc. Sweden.

CHINESE TURKESTAN: Ox-su, Tekes Valley, Tian Shan, one ♀ (ad.?), Aug. 30, 1925.—Wing 154 mm.

This specimen which, in spite of its blackish bill, has all the appearance of an adult bird, as far as the coloration of the exceedingly fresh plumage is concerned, agrees in size, shape of bill, and other characters with *O. o. oriolus*, although it is somewhat more heavily streaked below than any of our ten females from various

[1]Journ. Orn., 64, pp. 241-243, 584-585, 1916.

[2]Ticehurst, Journ. Bomb. Nat. Hist. Soc., 31, No. 3, p. 703, 1926.

[3]Journ. Orn., 70, p. 590, 1928.

parts of Europe (Germany, Roumania, Jugoslavia). Compared with six females of *O. o. kundoo* from Sirur, Bombay Presidency, it is much larger (wing 154, against 129-140 mm.), has a shorter, stouter bill, and much shorter yellow tips to the lateral rectrices, not to mention several minor differences.

There does not seem to be any definite breeding record of the Golden Oriole in the Tian Shan proper. Merzbacher's[1] specimens from the "Dscher-galan" [=Jargalan] Valley (east of the Issik-kul) and Narynsk, secured in April and September, are not conclusive and might have been migrants; and Severtzow (1875, p. 191), who claims to have collected the European form at Aulie-ata and farther east in the Tian Shan, leaves the reader in the dark as to the season. On the other hand, it appears to be certain that the Indian *O. o. kundoo*, while breeding in Ferghana and in the Chatkal-tau, does not occur, even as a migrant, anywhere in the Tian Shan.[2]

Carduelis carduelis paropanisi Kollibay. Tian Shan Goldfinch.

Carduelis caniceps paropanisi KOLLIBAY, Ornith Monatsber., 18, p. 148, 1910—"Narin-tal, Hindukush, N. Afghanistan," errore; the type locality is Narynsk, Tian Shan (see Kollibay, Journ. Orn., 64, p. 586, 1916).

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes River, ♀ ad., (worn breeding), ♂ juv., ♀ juv., Aug. 24; Ox-su, Ox-su River, ♂ juv., Aug. 31; Simtash, above the canyon of the Agijas River, two ♀ ♀ juv., Aug. 31, 1925.

The adult bird agrees with several topotypes from Narynsk in Field Museum. The other examples are in juvenile plumage with spotted breast and back and without any red about the head.

This is the Goldfinch breeding in the valleys of the Tian Shan, from the Issik-kul and Narynsk eastward to the Tekes River and its tributaries. The western limits of its range are hard to define at present. In Ferghana, the Chatkal-tau, and southern Sir Darya, it is replaced, according to Zarudny,[3] by a smaller form which he names *C. caniceps subcaniceps*. Kollibay (1916, p. 587) had already pointed out that birds from Tashkent and Pskem (Chir-lik River) were not quite the same as *C. c. paropanisi* from Narynsk. Ticehurst (1927, p. 864), however, claims that there is no difference in

[1]See Schalow (Journ. Orn., 56, p. 119, 1908, s. n. *O. kundoo*) and Laubmann (Abhandl. Bayr. Ak. Wiss., Math.-phys. Kl., 26, No. 3, p. 43, 1913, s. n. *O. oriolus kundoo*).—Laubmann (Orn. Jahrb., 26, p. 13, 1915) later corrected their identification.

[2]Kollibay (Journ. Orn., 64, pp. 241-243, 584-585, 1916), when criticizing Laubmann, was confused about the geography, for not one of his specimens of *O. o. kundoo* received through Alexejew came from the Tian Shan proper.

[3]Mess. Orn., 7, pp. 174-176, 1916.

size between specimens from Ferghana and the Tian Shan, and consequently questions the validity of *C. c. subcanicepS*. Without a sufficient series from the type locality (Kopet-tagh, southwestern Transcaspia) of the latter race the point can hardly be settled. The black-headed and gray-headed Goldfinches are evidently but geographic races of one "formenkreis" and, where representatives of the two groups meet, they have been found freely interbreeding.

Acanthis cannabina fringillirostris (Bonaparte and Schlegel). Eastern Linnet.

Linota fringillirostris BONAPARTE and SCHLEGEL, Monog. Loxiens, p. 15, pl. 49, 1850—"Nepaul," errore.[1]

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, five ♂♂, two ♀♀ (juvenile plumage), Aug. 24, 1925.

A series of adult birds from the Tian Shan has been examined in the collection of the Munich Museum. I agree with Laubmann's[2] conclusions that *A. c. merzbacheri* Schalow is inseparable from *A. c. fringillirostris*, if birds from the Pamir represent the latter form, whereas *A. c. bella* constitutes a different race distinguishable by the darker brown (less cinnamomeous), more heavily streaked back.

The exact distribution of *A. c. fringillirostris* can hardly be indicated with any degree of accuracy. We know that it breeds in the valleys of the Tian Shan and Pamir, but how far its breeding range extends in the west and east has yet to be ascertained. No Linnet has ever been taken in either Kashmir proper or Ladak, and it is even questionable whether it breeds anywhere within the Indian Empire, although it has been recorded as a rather irregular winter visitor in Gilgit,[3] Baltistan,[4] Rawalpindi (Salt Range),[5] and British Baluchistan.[6]

[1]Hartert (Vog. Pal. Fauna, **1**, p. 75, 1903) suggests that the type might have originated from Kashmir, whence there is, however, no authentic record for the Linnet. Schalow (Journ. Orn., **56**, p. 211, 1908) tentatively proposes "southwestern Asia, perhaps Persia or Transcaucasia" as type locality.

[2]Orn. Jahrb., **26**, pp. 18-19, 1915.—See also Kollibay, Journ. Orn., **64**, pp. 587-588, 1916.

[3]*Linota cannabina* BIDDULPH, Ibis, 1881, p. 86; 1882, p. 285; SCULLY, Ibis, 1881, p. 579.

[4]*Acanthis cannabina fringillirostris* RICHMOND, p. 461 (one male from Shigar [=Shikar], Jan. 24, 1892).

[5]*Acanthis fringillirostris* WHITEHEAD, Journ. Bomb. Nat. Hist. Soc., **17**, p. 243, 1906.

[6]*A. c. fringillirostris* TICEHURST, Journ. Bomb. Nat. Hist. Soc., **31**, p. 864, 1927.

Acanthis flavirostris montanella (Hume). Stoliczka's Twite.

Linota montanella HUME in Henderson and Hume, Lahore to Yarkand, p. 261 (in text), pl. 26, 1873—Arpalak River, Hill Yarkand (types in British Museum examined).

CHINESE TURKESTAN, HILL YARKAND: Sughet Karaul (alt. 12,000 ft.), ♂ ad., June 27; Tam, Sanju River (alt. 12,000 ft.), July 3, 1925.

These specimens, which are practically topotypes of *L. montanella*, agree with three others obtained by Dr. W. L. Abbott near Sughet, 13,000 ft., in July, 1893, in the collection of the U. S. National Museum. Birds from Gilgit examined at Tring and in the British Museum appear to me inseparable from the present form, and a single female taken by Zugmayer at Polu, in the Keriya Range, on June 15[1] belongs likewise here. Two adult birds in comparable plumage from the Pamir region: a male from the Tagdumbash Pamir (alt. 13,000 ft.), June 13, 1894, and a female from Little Karakul Lake, Sarikol (alt. 12,000 ft.), April 3, 1894, collected by Dr. W. L. Abbott for the U. S. National Museum, I am unable to distinguish by any character from the Sughet specimens, although, according to Sushkin's review,[2] they ought to be referable to *A. f. pamirensis*. They are neither more heavily streaked nor darker colored, and I am inclined to believe that the supposed differences between the two forms are seasonal or individual rather than racial. Birds from the Tian Shan, however, appear to be different, judging from a good series in the Munich Museum, and must stand as *A. f. korejevi* (Sarudny and Härms).[3]

A. f. montanella seems to inhabit, at altitudes of from 6,500 to 13,000 ft., the mountain ranges along the southern border of the Tarim basin, from the Pamir east to Zaidam and Nan Shan. Scully (p. 170) found it breeding near the Chuchu Pass and in the upper Karakash Valley; the Second Yarkand Mission, according to Sharpe (p. 29), at Panjah and near Kugiar, south of Karghalik; while Dr. W. L. Abbott, as recorded by Richmond (p. 573), obtained specimens near Sughet as well as in Sarikol and in the Tagdumbash Pamir.

In Ladak it is replaced by the allied *A. f. ladacensis* Meinertz-

[1]Recorded by Parrot (p. 256) as *A. flavirostris brevirostris*.

[2]Proc. Bost. Soc. N. H., 38, pp. 4-11, 1925.

[3]Ornith. Monatsber., 22, p. 53, 1914—Jarkent, Tishkan, and Ilysky, Semiryechensk.

hagen,[1] a somewhat larger form with thicker bill and much more fulvous coloration throughout, the upper parts being buffy brown to tawny olive instead of pale sandy buff, while throat and breast are much more deeply colored, varying from warm buff to near clay color instead of being buffy white, and more heavily streaked with blackish rather than dark brown. It appears to be very close to *A. f. rufostrigata* (Walton), from Sikkim and southern Tibet, but not quite so intensely colored. I have examined five specimens obtained by Dr. W. L. Abbott at Gya, Ladak, in July, 1897 and have seen others in Col. Meinertzhagen's collection and at the British Museum.

Serinus pusillus (Pallas). Red-fronted Serin.

Passer pusillus PALLAS, Zoogr. Rosso-Asiat., 2, p. 28, pl. 43, fig. 1, 1826(?) "circa Caucasum et mare caspium frequens "

LADAK: Lamayuru (alt. 11,500 ft.) one ♂ ad., two ♀ ♀ ad., May 30, Panamik, Nubra, two ♂ ♂ ad., June 11, 14, 1925.

The Red-fronted Serin is widely diffused throughout the mountainous parts of Palaearctic Asia, from Asia Minor and the Caucasus to Turkestan and the Himalayas as far east as Lahul and Garhwal.

After carefully comparing a large series covering the entire range, I find myself in agreement with Col. Meinertzhagen (1927, p. 380) that there is no sufficient reason for subdividing this species, although birds from Turkestan *generally* are more grayish on the upper parts.

Bucanetes[2] **mongolicus** (Swinhoe). Mongolian Desert Finch.

Carpodacus mongolicus SWINHOE, P.Z.S. Lond., 1870, p. 447 - Nankow Pass, China.

CHINESE TURKESTAN: Kisil Bulok, South Musart River, ♂ ad., ♀ ad., (in fresh fall plumage), two ♂ ♂, one ♀ (in juvenile molt), Sept. 17, 1925.

This bird is so much like *B. githagineus* that one is tempted to regard it as a race of it, and Meinertzhagen (1927, p. 380) actually treats it as such. It is, however, perhaps safer not to go so far at

[1]Bull. Brit. Orn. Cl., 46, p. 96, 1926—Leh, Ladak.—Oberholser (Proc. U. S. Nat. Mus., 22, p. 226, 1900) was the first to point out the characters of this form, calling it *Linota brevirostris pygmaea*. However, *Linota pygmaea* STOLICZKA (Journ. Asiat. Soc. Beng., 37, Part 2, p. 62, 1868—above Chini, Sutlej Valley, and Padam, Ladak) was clearly based on juvenile specimens of *Serinus pusillus*, as is evidenced by the deeply emarginate tail with yellow basis and the yellow edges to the primaries, mentioned in the description.

[2]See Sclater, Bull. Brit. Orn. Cl., 46, pp. 130-131, 1926.

present in view of our unsatisfactory knowledge of the breeding ranges of *B. mongolicus* and *B. g. crassirostris*, which possibly overlap in certain parts of Afghanistan and Persia.

In Turkestan, *B. mongolicus* is reported by Severtzow (Ibis, 1883, p. 56) to breed in the upper alpine region, living among rocks and steep ravines. In winter, it descends to lower altitudes, and then appears in small numbers in the Tarim basin, near Yarkand (Scully, p. 169), at Kisil Bulok and Egin (Menzbier, p. 353), at Kashgar, Chakmak, Tashkurghan, Panjah, and Sanju (Sharpe, p. 36). Dr. Abbott, as recorded by Richmond (p. 574), obtained specimens in the Tian Shan, north of Kashgar. It has also been found in Baltistan and Ladak, and probably breeds in certain parts of the latter country, since Mrs. Wathen (Journ. Bomb. Nat. Hist. Soc., **29**, p. 700, 1923) shot a specimen near Lamayuru as late as August 19.

Erythrina[1] **rubicilla severtzovi** (Sharpe). Severtzow's Rose Finch.

Carpodacus severtzovi SHARPE, P.Z.S. Lond., 1886, p. 354—Turkestan and Yarkand; type from "Kashgar,"[2] coll. Dr. Bellew (see Kinnear, Ibis, 1922, p. 523).

LADAK: Panamik, Nubra, (♀) ad., June 13, 1925.

CHINESE TURKESTAN: Tam Karaul, Sanju River (alt. 10,000 ft.), Hill Yarkand, two ♂ ♂ ad., two ♀ ♀ ad., (worn breeding), July 3; foot of Musart Glacier, Tian Shan, ♂ ad., (worn breeding), Aug. 16, 1925.

Two additional adult males from Sanju Pass (alt. 15,000 ft.), secured by J. Biddulph on October 22 and 24, 1874, have been examined in the British Museum, and the U. S. National Museum kindly lent me an adult male obtained by W. L. Abbott on July 18, 1893, in the Nubra Valley, Ladak, at 10,000 feet elevation.

The series agrees in every respect with the type and fifteen skins from the central Tian Shan (Issik-kul; Narynsk) and Ferghana (vicinity of Gulcha). Four adult males from Gilgit (January, February) and Punja-Wakham (April) collected by J. Biddulph, in the British Museum, are likewise inseparable from Turkestan birds in comparable plumage. The males are practically unspotted on

[1] *Erythrina* BREHM, 1828 replaces *Carpodacus* KAUP, 1829. See Stresemann, Ornith. Monatsber., **30**, p. 60, 1922.

[2] Locality no doubt inaccurate, since this Rose Finch, an inhabitant of high elevations, is not likely to occur near Kashgar. The type, which we have examined in the British Museum and found identical with our specimens from the Sanju Valley, probably originated from Hill Yarkand, and we accordingly suggest Tam Karaul, upper Sanju River, as an appropriate type locality.

the back; the females show obsolete dusky centers to the feathers of the crown and mantle, and pale brown streaks on the anterior under parts and flanks.

Severtzow's Rose Finch evidently breeds in the mountain chains bordering the Tarim basin north, west, and south, whence its range extends through Ladak, Rupshu, Lahul, and Spiti to southern Tibet.

Baker[1] treats it as a distinct species, regarding *"Carpodacus rubicilloides"* as a race of the Caucasian *E. rubicilla*. We cannot possibly agree to this arrangement.[2] *E. r. rubicilla* and *E. r. severtzovi* are unquestionably geographical races of the same "formenkreis," agreeing, as they do, in the proportion of the fifth primary as well as in general coloration, particularly in the uniform (unspotted) back of the male sex. Females from Caucasia, too, are very similar to those of *severtzovi*, and differ merely by slightly more grayish upper, and more boldly streaked under parts.

E. rubicilloides rubicilloides and its races *lapersonnei* and *lucifer*,[3] on the other hand, have a comparatively longer fifth primary. The males have the back marked with conspicuous blackish brown spots, and the red of the forecrown and underparts is of a deeper tone. The females are even more different, having the entire upper parts, from the forehead to the tail coverts, heavily spotted with blackish, and the whole of the ventral surface boldly streaked with blackish brown. I fully concur with Col. Meinertzhagen (Ibis, 1927, p. 385) that this group is specifically different from *E. rubicilla*. There can be but little doubt that *E. r. severtzovi* and *E. rubicilloides lapersonnei* breed side by side in certain parts of the eastern Himalayas. Re-examination of M. Babault's material[4] in the Paris Museum shows that two (out of four) adult males in worn breeding garb, collected in the gorges at Puga, Rupshu, in the last days of July, 1914, belong to *E. r. lapersonnei*, whereas the two others are perfectly typical examples of *E. r. severtzovi*. The British Museum, too, possesses a couple of adults of *E. r. lapersonnei* secured by J. Biddulph on September 18 and 19, 1873, on the shore of Pangong Lake, while another adult male shot by George Henderson in the same locality on October 9, 1870, and preserved in the same collection is unmistakably *E. r. severtzovi*. Oustalet (pp. 33, 35) likewise records the two species as having been obtained by Prince Orléans and Bonvalot on April 12, 1890, at Tandi, on the Tibetan plateau.

[1]Fauna Brit. India, 2nd ed., Birds, 3, p. 139, 1926.
[2]See also Rothschild, Nov. Zool., 33, p. 331, 1926.
[3]Meinertzhagen, Bull. Brit. Orn., Cl., 46, p. 83, 1927 (types examined).
[4]*Carpodacus severtzovi* BABAULT, Mission, Rés. Scient., Ois., p. 189, 1920.

I strongly doubt the locality "Kashgar" of the specimen discussed by Meinertzhagen,[1] and do not believe that any representative of the *rubicilloides* group is found in the Tarim basin. Meinertzhagen's suspicion (Ibis, 1927, p. 386) that *Carpodacus rhodochlamys* of the Second Yarkand Mission (Sharpe, p. 42) might be referable to *E. rubicilloides lapersonnei* is unfounded, since two of the specimens (No. 1143, ♂ ad. Kashgar, Dec. 13, 1873; No. 1371, ♂ ad. Jaitava, north of Altum Artush, Feb. 21, 1874. Stoliczka), which are still in the British Museum, clearly belong to the *E. rhodochlamys* section.

Erythrina erythrina roseata (Blyth). Indian Rose Finch.

Pyrrhula roseata (Tickell MS.) BLYTH, Journ Asiat. Soc Beng., **11**, (1), p. 461, 1842—India, no locality specified.

LADAK: Pandras, Gumber River (alt. 11,600 ft.), ♂ ad, May 23; Shimsa Kharbu, Dras Valley (alt. 9,800 ft.), ♂ ad., ♀ ad., May 26; Nurle, Indus Valley (alt. 11,000 ft.), ♂ ad, May 31; Leh, ♂ ad., June 5; Panamik, Nubra, four ♂♂ ad, two ♂♂ (second year), three ♀♀ ad., June 11, 12, 19, 1925.

CHINESE TURKESTAN: Sanju Bazar, Sanju River (alt. 6,600 ft.), Hill Yarkand, ♂ (second year), July 5, 1925; Shatta, Tekes River, Tian Shan, ♂ juv., Aug. 23; Tekes Valley, near mouth of Mointa River, ♂ juv., Sept. 9, 1925.

In addition, Field Museum has specimens from Narynsk, Tian Shan, collected by Datschenko and Laurenty. I do not find any difference, either in size or color, between birds from Ladak and those from the Tian Shan. The length of the wing in Ladak specimens ranges from 83 to 87 mm., thus agreeing well with the figures given by Laubmann[2] for a Turkestan series.

The three races of the Rose Finch are certainly very close to each other, and a good many examples could not be allocated to any race without knowledge of their origin. Still, taken as a whole, birds from the western and eastern Himalayas and from Turkestan, in variation and size, appear to be more nearly alike *inter se* than they are to the Caucasian race (*E. e. kubanensis* Laubmann), to which Ticehurst[3] would refer the inhabitants of Turkestan and the western Himalayas.[4]

[1]Bull. Brit. Orn. Cl., **46**, p. 84, 1926.

[2]Verh. Orn. Ges. Bay., **12**, p. 97, 1915.

[3]Journ. Bomb. Nat. Hist. Soc., **32**, pp. 345-346, 1927.

[4]In his recently published review (Journ. Orn., **77**, pp. 309-315, 1929), Stantschinsky likewise refers the birds of Turkestan and the western Himalayas to *E. e. roseata*.

Montifringilla nivalis adamsi Adams. Tibetan Snow Finch.

Montifringilla adamsi (Moore MS.) ADAMS, P. Z. S. Lond., 26, "1858," p. 482, pub. early in 1859 -"barren mountains of Ladakh and Little Tibet."

LADAK: Fotu La (alt. 13,800 ft.), ♂ ♀ ad. ("breeding"), May 30, 1925. Wing 110 mm.

Compared with specimens from the Caucasus and the Tian Shan (Narynsk[1]), this form is smaller in all its dimensions and has much less white on secondaries and upper wing coverts.

The Tibetan Snow Finch ranges from Ladak east through the Himalayas to Nepal, Sikkim, and southern Tibet, and has also been recorded from the Kukunor Mountains. It does not seem to occur either in Kashmir or Gilgit, nor is there any reason for including "Kashgar"[2] in its distributional area. Birds from the Turugart Pass (north of Kashgar)[3] and Kaskasu,[4] Sarikol-Pamir (west of Yarkand) are referable to *M. n. alpicola*, though Sharpe (p. 31), by mistake, recorded the latter locality under the heading of *M. adamsi*.

The single male from the Aksai Plateau, listed by Carruthers (Ibis, 1910, p. 447) as *M. adamsi*, also turns out to belong to *M. n. alpicola*, as I am informed by Mr. N. B. Kinnear, of the British Museum. Scully (p. 172) states that he obtained *M. adamsi* on the Chuchu Pass, above Sanju, in Hill Yarkand. The specimens, now in the Calcutta Museum, have been reexamined by Mr. Kinnear, who writes that they are nearest to *M. a. alpicola*, but differ by their pale fawn instead of grayish upper parts. They would seem to correspond to the description of *M. n. kwenlunensis* Bianchi[5], which is said to range as far west as Tochtachon, north side of the Raskam Range. Parrot's record (p. 255) of *M. n. alpicola* from Polu, Keriya Range probably refers to the same form.

Leucosticte nemoricola altaica (Eversmann). Stoliczka's Mountain Finch.

[1]Birds from the central Tian Shan appear to me inseparable from *M. n. alpicola*, and if *M. n. groum-grzimaili* SARUDNY (Orn. Jahrb., 15, p. 215, 1904–Shin-shin-sha) is a valid form, it must be restricted to the northeastern range of that mountain system near the southern border of Dsungaria.

[2]As has been done by Sharpe (Cat. B. Brit. Mus., 12, p. 262) and Hartert (Vog. Pal. Fauna, 1, p. 134).

[3]An adult male collected by W. L. Abbott (see Richmond, p. 574) examined in the U. S. National Museum.

[4]Specimens collected by Stoliczka and Biddulph in the British Museum.

[5]Ann. Mus. Zool. Acad. Sci. St. Pétersb.,12, "1907," pp. 583, 588, Feb., 1908.

Fringilla altaica EVERSMANN, Bull. Soc. Natur. Moscou, 21, p. 223, 1848 — Uimon, southern Altai.

KASHMIR: Baltal (alt. 9,700 ft.), ♂ ad., May 23, 1925.

This specimen as well as others from Kashmir and Ladak in the collection of the British Museum appear to be identical with a series from the Tian Shan.

This Finch, nearly related to *L. n. nemoricola* (Hodgson), is widely diffused in the mountain ranges of Central Asia (Altai, Tian Shan, Ferghana, Pamir) and the western Himalayas, from Gilgit east to Lahul and Spiti. In Garhwal and Kumaon it is said to intergrade with the typical form of the eastern Himalayas.

Leucosticte brandti pallidior Bianchi. Bianchi's Mountain Finch.

Leucosticte haematopygia pallidior BIANCHI, Ann. Mus. Zool. Acad. Sci. St. Pétersb., 13, pp. 45, 55, July, 1908—northern Tibet and western Nan Shan; no type locality specified, we suggest as such Karasai, Russian Range.[1]

CHINESE TURKESTAN, HILL YARKAND: Sughet Karaul, two ♂♂ ad., June 27; Ayalik, Sanju River (alt. 13,000 ft.), four ♂♂ ad., two ♀♀ ad., one ♀ juv., July 2, 3, 1925.

Additional specimens.—Sughet Pass (alt. 16,000 ft.), ♂ ad., late July, 1893. W. L. Abbott (U. S. National Museum); Kufalong, south of Sughet Pass, ♂ ad., June 12, 1874. J. Biddulph (British Museum); Upper Karakash Valley, ♀ juv., October 12, 1873. J. Biddulph (British Museum); Khotan-tagh, ♂ ad., May (British Museum); Polu, Keriya Range, Kuenlun, ♀ ad., May 15, 1906. E. Zugmayer (Munich Museum); Karasai, Russian Range, Kuenlun, ♂ ad., May, 1890. M. W. Pewzow (Tring Museum); Altyn-tagh, south of Lob Nor, three ♂♂ ad., four ♀♀ ad., two ♀♀ imm., March and April, 1903, May 18, 19, 1909. R. Tancré's collectors (Tring and Munich Museum); Zaidam, two ♂♂ ad., December. Przewalski (British Museum).

The treatment of the races of *L. brandti* by authors has undergone many vicissitudes. Hartert[2] recognizes but one species with three geographical forms: *M. b. brandti, M. b. haematopygia,* and *M. b. walteri*. Bianchi, a few years later,[3] in addition to the newly discovered *L. margaritacea,* distinguishes *L. brandti, L. haematopygia, L. h. pallidior* (n. subsp.), and *L. h. walteri;* while the latest reviewer, Ernst Mayr,[4] regards them all as races of one "formenkreis." This

[1]First locality mentioned by Bianchi (p. 55). The Tring Museum has an adult male in worn breeding plumage from this place, received in exchange from the Leningrad Museum.

[2]Vög. Pal. Fauna, 1, pp. 137, 138, 1904.

[3]Ann. Mus. Zool. Acad. Sci. St. Pétersb., 13, pp. 52-56, 1908.

[4]Journ. Orn., 75, pp. 606-608, 1927.

arrangement marks a decided improvement upon all previous attempts of classification, and expresses the natural interrelationship of these birds in the most satisfactory way. My studies of very extensive material, however, tend to show that the ranges assigned to the various races require certain modifications, and that at least one additional form should be recognized.

Variation within the same form is slight. In fresh fall plumage the forepart of the crown is blacker, with narrow creamy-white apical edges which are gradually worn off as the season advances; the feathers of the mantle are laterally margined with buffy; and the pink edges on rump and lesser upper wing coverts are wider. In worn breeding garb the head is uniform brownish black; the back, owing to the loss of the buffy edges, looks more grayish or brownish, and the dusky central portion of the feathers becomes more prominent, producing sort of a dusky streaking; the pink edges on rump and wing coverts are narrower, brighter red, and more sharply defined; the white apical margins to the quills and rectrices have almost completely disappeared through wear. The only sexual difference consists in the females being slightly smaller and having a lesser amount of bright markings on wing coverts and rump, which, besides, are paler pink or even of various shades of yellow. I am able to recognize the following forms:

(a) *Leucosticte brandti brandti* Bonaparte.

Leucosticte brandti Bonaparte[1] was proposed as a new name for *Fringilla* (*Linaria*) *Gebleri* Brandt,[2] preoccupied by an earlier *F.* (*L.*) *gebleri* of the same author.[3] Brandt describes his bird as having the "dorsum, humerales superiores, *uropygium*, guttur, pectus et abdomen cum crisso albido-cinerea" and the "*tectricum alarum superiorum minores* albo-cinereae, *purpureo-cinnabarino* vel *subaurantio limbatae*." This description can apply only to the Tian Shan form, in which the lesser upper wing coverts are always very conspicuously edged with pink, whereas the rump is either wholly uniform or shows but slight suggestions of pinkish apical fringes.[4] In fifty-seven (out of eighty-nine) specimens from the Tian Shan

[1]Consp. Av., 1, p. 537, 1850.

[2]Bull. Cl. Phys.-Mathém. Acad. Sci. St. Pétersb., 1, No. 23, p. 364, 1843—"Sibérie."

[3]Brandt, Bull. Scient. Acad. St. Pétersb., 10, Nos. 14-16 [=Nos. 230-232], p. 251, 1842—"Sibérie" [=*Leucosticte arctoa*].

[4]Laubmann's contrary statement (in Abhandl. Bayr. Ak. Wiss., Math.-phys. Kl., 26, No. 3, p. 58, 1913) is disproved by his own material examined in the present connection.

the rump is plain (unmarked), while the remaining thirty-two skins exhibit mere traces of pink margins to some of the uropygial feathers. These markings are, however, much narrower, paler, and less pronounced than in *L. b. pallidior*.

The range of *L. b. brandti* appears to be restricted to the central and northern Tian Shan, from the Alexander Range in the west to the Yulduz in the east, extending north to the Boro-khoro Mountains and south to the Kokshal-tau (north of Uchturfan). Breeding specimens have been examined from Sary-jass, Tishkan, Jarkent, Ara-bel, and the Issik-kul region.

(b) *Leucosticte brandti pallidior* Bianchi.

In the mountain chains along the southern border of the Tarim basin, *L. b. brandti* is represented by the closely allied, but well characterized *L. brandti pallidior* Bianchi. While similar in general coloration, it may immediately be recognized by having the uropygial feathers broadly margined with bright pink or salmon orange, and by the absence of the pink edges to the lesser upper wing coverts, which form such a striking feature in the Tian Shan race. In both respects, it agrees with *L. b. haematopygia*, but is very much paler throughout. The black of the pileum is much less extensive, being mainly restricted to the anterior crown and passing into dark brown posteriorly; the hind neck is hardly darker than the back; the dusky dorsal streaking is much narrower and paler brown; the cheeks, auriculars, and sides of neck are much paler brown, and the under parts likewise lighter, not streaked with dusky on the breast.

Bianchi (o. c., p. 55) gives the range of *L b. pallidior* as stretching from Achan (Russian Range) east to the Nan Shan and Kukunor Range, but I am informed by Prof. Sushkin (in litt.) that birds from the two last named mountain chains constitute another (yet unnamed) local race.[1] In the west, however, the breeding area of *L. b. pallidior* is much more extensive, as I learn from my own investigations. The series obtained by the Simpson-Roosevelt Expedition in the Sughet Range at the head of the Sanju River as well as specimens secured by J. Biddulph at Kufalong and in the Upper Karakash Valley prove to be indistinguishable from topotypical examples (Karasai, Russian Range; Khotan-tagh) and a series from the Altyn-tagh (south of Lob Nor) in the collections at Tring and Munich. A single adult bird (in breeding garb), taken by E. Zug-

[1] A single adult male from Nan Shan in the British Museum, collected in July by N. M. Przewalski, however, seems barely separable from *L. b. pallidior*.

mayer on June 15, 1906 at Polu, Keriya Range,[1] is likewise similar. The lesser wing coverts are, as a rule, quite uniform, only in a few specimens (two from Sughet Karaul, one from Ayalik, three from Altyn-tagh) are faint traces of pinkish or yellowish fringes discernible.

Bianchi's Mountain Finch was recorded both by Henderson and Hume (p. 262) from the Upper Karakash, and by Scully (p. 171) from Kichik Yailak and Tarbughoz, near Sanju Pass, under the erroneous name *M. haematopygia*, while Sharpe (p. 32) referred specimens secured by the Second Yarkand Mission at Karatagh Lake, on the Upper Karakash, to *M. brandti*, to which also Richmond (p. 574) assigned a single male taken by W. L. Abbott on the Sughet Pass.[2]

Its breeding range is thus seen to extend along the southern border of the Tarim basin from the Sughet Range and the Sanju Valley throughout the Khotan-tagh, Russian Range, and Altyn-tagh at least to the Tash-dawan, south of Lob Nor. In winter, it repairs even to western Zaidam, whence there are in the British Museum two perfectly typical adult males taken by N. M. Przewalski in December.

(c) *Leucosticte brandti pamirensis* Severtzow.

Leucosticte pamirensis SEVERTZOW, Ibis, (5), 1, p. 58, 1883—Pamir, restricted type locality Kysil-art Pass.[3]

Although Sharpe[4] took great pains in demonstrating the identity of *L. pamirensis* and *M. haematopygia* with *L. brandti*, and was supported in this view by Schalow (1901, pp. 442-443), careful study of the material in the British Museum tends to indicate that the mountain finches of the Pamir and Ferghana cannot well be united to any of the neighboring forms, and the late P. P. Sushkin, with whom I had corresponded on the subject, agreed with me that *L. b. pamirensis* was a valid race.

Birds from the Pamir (Kysil-art; Karakul; Tarbashi and Chahil

[1]Recorded as *M. brandti haematopygia* by Parrot (p. 254).

[2]Bianchi (o. c., p. 54), apparently without having seen any material, included all these localities in the range of *L. brandti*, and Mayr (Journ. Orn., 75, p. 607, 1927) evidently had them in mind, too, when assigning the "Westlichen Auslaufer des Kwenlun" to the distribution of that form.

[3]Severtzow's account of this and the allied species is fairly confused, and the matter given under No. 27, *Leucosticte brandti*, appears to have been accidently misplaced. These and numerous other deficiencies noticeable in Severtzow's paper are probably due to the many vicissitudes it had to undergo before being translated into English (see Ibis, 1883, note on p. 48).

[4]Cat. B. Brit. Mus., 12, pp. 270-271, 1888.

Gombaz, Sarikol) and Gilgit resemble *L. b. pallidior* in having distinct pink margins to the rump, but differ by the presence of narrow rosy edges to the lesser upper wing coverts, in which respect they form the transition to *L. b. brandti* of the Tian Shan. Certain examples, such as one (out of ten) from Gilgit, one (out of two) from Chahil Gombaz, and one from Tagdumbash Pamir (U. S. National Museum, No. 150276), however, lack the pinkish edging on the shoulders, and are barely distinguishable from *L. b. pallidior* of the Sughet Range. Compared to *L. b. brandti*, Gilgit and Pamir birds may be distinguished by the conspicuous pink (or orange yellowish) markings on the rump and narrower rosy apical edges to the lesser upper wing coverts. Specimens from the Alai and Ferghana Range generally have less pink suffusion on the rump, thus coming nearer to *brandti*.

According to material examined and information kindly supplied by the late Dr. P. P. Sushkin, the breeding range of *L. b. pamirensis* comprises the Pamir (including Sarikol and the Tagdumbash), the Alai, Transalai, the Ferghana, Zerafshan, and Hissar ranges, and the Chatkal-tau.[1] In winter it visits Gilgit.[2]

Specimens examined.—Gilgit 10.—Pamir: Tagdumbash 1 ♂ ad., April 28, 1894. W. L. Abbott; Chahil Gombaz, Sarikol, two ♂♂ ad., March 25, 26, 1874. J. Biddulph; Tarbashi, Sarikol, adult, March 23, 1874. F. Stoliczka (British Museum); Kysil-art Pass, ♂ ad., July 23. N. Severtzow (topotype of *L. pamirensis*); Karakul, ♂ ad., August; Kaplan-kul, ♀ imm., Oct. 5; ♂ imm., Dshudshalc River, Nov. 2. Severtzow (all in British Museum); Kara-karyk, Alai, ♂ ♀ ad., June, 1893. Th. Barey (Berlepsch Collection).

(d) *Leucosticte brandti haematopygia* (Gould).

Montifringilla haematopygia GOULD, P. Z. S. Lond., 19, "1851," p. 115, pub. Apr. 29, 1853—"Tibet," coll. Lord Gifford, = Tso Morari Lake, Ladak (see Kinnear, Ibis, 1922, p. 519).

This form agrees with *L. b. pallidior* in having the uropygial feathers broadly margined with bright pink and in lacking the rosy edges to the lesser upper wing coverts, but is much darker throughout. The upper part of the head is more blackish; the hind neck

[1]References pertaining to *L. b. pamirensis* are as follows:
Montifringilla brandti SHARPE, Scient. Res. Second Yarkand Miss., Aves, p. 32, 1891—part, Tarbashi and Chahil Gombaz.—SCHALOW, Journ. Orn., 49, p. 442, 1901—Irkeshtan.—*Leucosticte brandti* PLESKE, Mém. Acad. Imp. Sci. St. Pétersb., (7th ser.), 36, No. 3, p. 16, 1888—Dougdan Pass and Iskander-kul, Chatkal-tau.—RICHMOND, Proc. U. S. Nat. Mus., 18, p. 574, 1896—part, Tagdumbash Pamir.—*Montifringilla brandti pamirensis* STOLZMANN, Bull. Soc. Imp. Natur. Moscou, nouv. sér., 11, p. 62, 1897—Kara-karyk, Ferghana (crit.).

[2]*Leucosticte brandti* BIDDULPH, Ibis, 1881, p. 88.

and nape much darker brown; the cheeks and auriculars decidedly blackish brown, the sides of the head very nearly as dark as the hind neck; the back much more broadly streaked with blackish brown; the under parts more brownish, with distinct, though narrow, dusky streaks on the breast.

Its range extends from eastern and southern Ladak[1] through Rupshu, Lahul, and Spiti east to Sikkim and southern Tibet. In Ladak it does not reach beyond the Karakoram, the most northerly locality whence specimens have been examined being the Sassir Pass. I have no means of determining the exact eastern limits of its distribution which, according to Sushkin (in litt.), stretches throughout eastern Tibet north to the sources of the Mekong and Yangtze-kiang and even to the eastern end of the Nan Shan (Yun-nan-chen, Tetung River).[2]

Worn summer specimens from Sikkim and Mount Everest look very much like a Ladak series in corresponding plumage, but comparison of birds in fresh autumn dress, which are not available from Ladak, may reveal some differences.

In addition to a large series from Sikkim and the Mount Everest region in the British Museum and twelve from Ladak in Col. Meinertzhagen's collection, I have examined six adults from Khardong, Gya, Sassir La, and Kazuri La, Ladak, collected by Dr. W. L. Abbott[3] in June and July, and kindly loaned by the authorities of the U. S. National Museum.

(e) *Leucosticte brandti walteri* (Hartert).

Montifringilla brandti walteri HARTERT, Vog. Pal. Fauna, 1, p 138, 1904 - Sung-pan, Sue Shan, Szechwan.

Very nearly related to *L. b. haematopygia*, but back, sides of head and neck even darker, more blackish brown; rump feathers but indistinctly tipped with pale pink; under parts much darker, hair brown with a tinge of drab, only the abdominal line and the under tail coverts margined with white.

[1]It is not found either in Kashmir or western Ladak. Both Hartert (Vogel Pal. Fauna, 1, p. 137, 1904) and Mayr (Journ. Orn., 75, p. 607, 1927) include Gilgit in its range, but birds from this country are by no means referable to *L. b. haematopygia*, as has already been pointed out by Kinnear (Ibis, 1922, pp. 519-520).

[2]*M. haematopygia* PLESKE, Bull. Acad. Sci. St. Pétersb., nouv. ser., 3, p. 121, 1892.—Laubmann (Abhandl. Bayr. Ak. Wiss., Math.-phys. Kl., 26, No. 3, p. 58, 1913) quite erroneously places Yun-nan-chen in the eastern Tian Shan, and refers Pleske's reference to *L. b. brandti*!

[3]Recorded as *Leucosticte brandti* by Richmond (p. 462) and Oberholser (p. 225).

This form appears to replace the preceding race in the alps of northern Szechwan. In addition to the type at Tring, I have seen three adults secured by H. Weigold at Dshiësongla, southwest of Tatsienlu, in the collections at Munich and Cambridge (Mass.).

(f) *Leucosticte brandti margaritacea* (Madarász).

Montifringilla margaritacea MADARÁSZ, Ornith. Monatsber., 12, p. 196, 1904—Katon-Karagai = Kotton-Karagai, Altai.

The last member of this group of mountain finches, which many ornithologists of the old school would doubtless separate specifically, is evidently more nearly related to *L. b. brandti* than to any other, but differs markedly by silvery gray (instead of blackish) forecrown, ashy gray (instead of dark brown) cheeks and auriculars, (silvery) gray under parts, broad light pink edges to axillaries and sides of breast, and pale reddish brown bill. The uropygial feathers show but short pink tips, while on the wing the median as well as the lesser coverts are margined with pale pink.

L. b. margaritacea, of which I have examined a fine adult male from the upper Sary-Dshamaty, south slope of Sailugem, inhabits the high mountains in northwestern Mongolia (Kotton-Karagai; Tarbagatai).

Passer domesticus parkini Whistler. Kashmir House Sparrow.

Passer domesticus parkini WHISTLER, Bull. Brit. Orn. Cl., 41, p. 13, 1920—Srinagar, Kashmir.

LADAK: Kargil (alt. 8,800 ft.), Dras River, ♂ ad., May 26; Panamik, Nubra, five ♂ ♂ ad., one ♀ ad., June 11, 12, 13, 1925.

Measurements of adult males.—Wing 78 (Kargil), 79, 82, 82, 82, 82; tail 58 (Kargil), 58, 60, 61, 62, 63.

These specimens agree with a series from the Vale of Kashmir and Baltistan. Compared with *P. d. indicus*, of the plains of India, they are larger in all dimensions, have heavier bills, and the males may, furthermore, be distinguished by the richer chestnut of the mantle and smaller wing coverts. The sides of the head are pure white, rarely tinged with pale grayish on the auriculars.

P. d. parkini is the breeding form of the House Sparrow throughout a large section of the Himalayas, ranging from Chitral to Spiti, Lahul, and probably as far east as Sikkim, and extending west into the mountainous parts of northern Baluchistan (Kalat, Quetta)

and Afghanistan (Kandahar).[1] It is largely migratory, and passes the winter in Punjab,[2] Sind,[3] and other parts of western India.

Passer hispaniolensis transcaspicus Tschusi. Tschusi's Spanish Sparrow.

Passer hispaniolensis transcaspicus TSCHUSI, Ornith. Monatsber., **10**, p. 96, 1902—from Transcaucasia (Lenkoran) eastward; type locality Jelotan, Transcaspia (see Orn. Jahrb., **14**, p. 10, 1903).

CHINESE TURKESTAN: Conishar, six mi. northeast of Aksu, four ♂♂ ad., one ♀ ad. (worn breeding plumage), Aug. 7, 1925.

The series agrees with Transcaspian specimens in corresponding plumage. The eastern race of the Spanish Sparrow is common in the Tarim basin up to the southern foot of the Tian Shan. Scully (p. 164) found it tolerably common at Yarkand, where it breeds in May and June. The Second Yarkand Mission, as recorded by Sharpe (p. 39), met with it at various localities in the plains of Kashgaria, and also secured two males at Chakmak, on the southern slope of the Tian Shan at an elevation of 8,800 feet.

It is widely diffused in the neighboring districts of Turkestan, Transcaspia, and northern Persia, wintering in Baluchistan, Mesopotamia, Sind, Punjab, and other parts of western India.

Passer ammodendri stoliczkae Hume. Stoliczka's Sparrow.

Passer stoliczkae HUME, Stray Feath., **2**, p. 516, 1874—near Kashgar, Turkestan.

CHINESE TURKESTAN: Alager, Yarkand River, two ♂♂ ad., one ♀ ad. (breeding), one ♀ juv., July 20; Maralbashi, Kashgar River, ♂ juv., July 24, 1925.

These specimens are very nearly topotypical, and agree in every detail with others from Kashgar, coll. J. Biddulph, in the British Museum. From typical *P. a. ammodendri*, from Sir Darya and Ferghana, the males differ by sand color (instead of light grayish brown) upper parts, wholly unspotted rump and tail coverts as well as deeper ochraceous tawny postocular stripe. The female, too, is much more sandy above.

P. a. stoliczkae is peculiar to the Tarim basin and the Gobi desert, extending east to Ala Shan and Ordos, and north to the spurs of the eastern Tian Shan. It was discovered by Dr. F. Stoliczka and J. Biddulph, naturalists of the Second Yarkand Mission, in the

[1]Ticehurst, Journ. Bomb. Nat. Hist. Soc., 31, No. 4, pp. 865-6, 1927.
[2]Whistler, Ibis, 1922, p. 272.
[3]Ticehurst, Ibis, 1922, p. 650.

vicinity of Kashgar (see Sharpe, p. 39). Majev and Wilkins met with it near the Taushkan Darya at Uchturfan, at Jigda, and Djaitewe, along the southern base of the Kokshal-tau (Menzbier, p. 354). Pleske,[1] who was the first to properly discriminate between *stoliczkae* and *ammodendri*, records it from Hami and various localities in Bei Shan (eastern Tian Shan); and Oustalet, in the second part of his report on Bonvalot's and Prince d'Orléans's collections (p. 44), lists specimens from Chumtalla and Tikellik, situated on the Tarim, west of Lob Nor. Dr. W. L. Abbott, as recorded by Richmond (p. 575),[2] obtained specimens at the junction of the Aksu and Kashgar rivers and at Matan, forty miles south of Aksu, while Schalow (1901, p. 441) mentions a single male from Maralbashi, collected by Dr. Holderer.

Passer montanus dilutus Richmond. Kashgar Tree Sparrow.

Passer montanus dilutus RICHMOND, Proc. U. S. Nat. Mus., **18**, p. 575, 1895—Kashgar, eastern Turkestan.

CHINESE TURKESTAN: Kashgar, six ♂♂ ad., eight ♀♀ ad., Oct. 5-12; Alager, Yarkand River, ♂♀ ad. (breeding), July 20, 21; Aksak-màral, ♀ ad. (breeding), July 22; Shamal, Yarkand River, ♂ ad. (breeding), July 23; Yaka-kuduk, ♂ ad. (molting), Sept. 22; Maralbashi, Yarkand River, ♀ ad., Sept. 27; Conishar (six miles northeast of Aksu), five ♂♂, one ♀ ad. (breeding), Aug. 7-9; Shatta, Tekes Valley, Tian Shan, ♂ ad., six ♂♂ juv., Aug. 23, 24, 1925.

In comparison with forty specimens from various parts of Europe, this series is very much paler throughout. The pileum is somewhat between fawn color and army brown instead of being deep sorghum brown; the back much brighter and more sandy; the lesser upper wing coverts lighter, less chestnut; the black gular patch less extensive; the sides and under tail coverts strongly tinged with buff; the chest with a hardly perceptible shade of grayish.

P. m. dilutus appears to find the center of its range in the Tarim basin. Henderson (p. 254) mentions it as abundant in the city of Yarkand; Scully (p. 165) lists it as common in the plains between Yarkand and Kashgar, and obtained breeding examples at Kisil Aghil, near Sanju. In the same region, at Kiwaz, it was also met with by the naturalists of the Second Yarkand Mission who, besides, procured specimens at Karghalik, Yangihissar, Kashgar, and Maralbashi (Sharpe, p. 37). Holderer's party, as recorded by

[1]Bull. Acad. Sci. St. Pétersb., nouv. sér., 3, p. 121, 1892.

[2]Richmond, while correctly distinguishing two races, erred in his nomenclature. The Ili-bird, named *P. a. timidus*, represents typical *P. a. ammodendri*, while those from eastern Turkestan belong to *P. a. stoliczkae*.

Schalow (1901, p. 440), collected the Tree Sparrow at various spots along the Kashgar Darya (Uksalur, Jangiabad, Kara-julgan), and Merzbacher (see Schalow, 1908, p. 203) forwarded specimens from Kashgar to the Munich Museum. Prince Orléans and Bonvalot, on their famous journey across Turkestan and Tibet, secured the Tree Sparrow in the plains around Kurla, near the Bagrash-kul, and again at Aktarma, on the banks of the lower Tarim toward Lob Nor, as we are told by Oustalet (p. 42). The specimens which we have examined in the Paris Museum are undoubtedly referable to the pale eastern race. How far its range extends in the east, however, cannot at present be indicated with any degree of accuracy. Birds from the Kukunor region are stated by Bangs and Peters[1] to belong to the Chinese *P. m. obscuratus* Jacobi.

In the north, *P. m. dilutus* stretches into the valleys of the Tian Shan. Birds from eastern Persia, Transcaspia, and Russian Turkestan are claimed by Snigirewski[2] to be separable as *P. m. pallidus* Sarudny.

Passer rutilans cinnamomeus (Gould). Kashmir Cinnamon Sparrow.

Pyrgita cinnamomea GOULD, P. Z. S. Lond., 3, "1835," p. 185, pub. April, 1836—"apud montes Himalayenses."

Passer rutilans debilis HARTERT, Vog. Pal. Fauna, 1, p. 162, 1904 - Sind Valley, Kashmir.

KASHMIR: Gund (alt. 7,000 ft.), one ♂ ad., two ♀ ♀ ad., May 21; above Gagan River Gorge, ♂ ad., May 23, 1925.

All of these specimens are strongly washed with yellowish underneath. Examination of the long series in the British Museum clearly shows that birds from Nepal, Sikkim, Bhutan, and southern Tibet are distinctly larger (wing 74-82) than those from Kumaon west to Kashmir, in which the length of the wing ranges from 69 to 74 mm. It appears, however, that Hartert, by naming *P. r. debilis*, has merely redescribed typical *cinnamomeus*, as has been pointed out by Kinnear (Ibis, 1922, p. 521) and Ticehurst,[3] and that it is the larger eastern form which requires a new name. It is very unfortunate that Hartert should have selected Bhutan as type locality for *P. cinnamomea*. Apart from the quasi impossibility of Gould receiving a bird from that region in 1835, the length of the wing, as

[1]Bull. Mus. Comp. Zool., 68, p. 377, 1928.
[2]Journ. Orn., 76, p. 591, 1928.
[3]Journ. Bomb. Nat. Hist. Soc., 32, No. 2, p. 347, 1927.

given in the original description (2¾ in.=70 mm.), clearly points to the small form of the western Himalayas.

The Kashmir Cinnamon Sparrow is well figured in Henderson and Hume's Lahore to Yarkand on pl. 25, facing p. 252.

Emberiza leucocephalos S. G. Gmelin. Pine Bunting.

Emberiza leucocephalos S G. GMELIN, Nov. Comm. Acad. Sci. Petrop., 15, p. 480, pl. 23, fig. 3, 1771—Astrakhan.

CHINESE TURKESTAN, TIAN SHAN: Ox-su, Tekes Valley, (♂) ad., Aug. 30; Tekes Valley, near mouth of Mointa River, ♀ ad., Sept. 9, 1925.

In both specimens, flight feathers and body plumage are in full molt, and this circumstance in conjunction with the date makes it almost certain that they had been breeding in the Tekes Valley.

Laubmann (p. 61) felt rather doubtful as to whether the Pine Bunting should be included among the breeding birds of the Tian Shan, although one of the specimens in the Merzbacher Collection had been taken in May in the Kunges Valley. Field Museum has a series of winter birds from Narynsk, Tian Shan.

E. leucocephalos is widely diffused throughout Siberia east to the Amur. In winter it migrates to northwestern India, Baluchistan, and neighboring countries.

Emberiza buchanani Blyth. Gray-necked Bunting.

Emberiza buchanani BLYTH, Journ. Asiat. Soc. Beng., 13, (2), p. 957, 1844—based on a drawing by Buchanan Hamilton, Indian Peninsula.[1]

CHINESE TURKESTAN, TIAN SHAN: Ox-su, Tekes Valley ♂ ad., Aug. 29; Simtash, ♀ ad., Aug. 31; Agijas, ♀ (first winter?), Sept. 2, 1925.

The adult birds, in exceedingly fresh fall plumage, I am unable to distinguish by any character from the numerous winter specimens from India, with which they have been compared in the collection of the British Museum, although the female is somewhat browner and more heavily marked above than the average. It would seem, therefore, that Sarudny and Korejew, in describing *E. buchanani* var. *obscura*,[2] have merely renamed typical *E. buchanani*, based on a

[1]There is absolutely no reason to supplant the above specific name by the later *Euspiza Huttoni* BLYTH (Journ. Asiat. Soc. Beng., 18, (2), p. 811, 1850—Afghanistan), as has recently been proposed by BAKER (Faun. Brit. India, Birds, 3, new ed., pp. 208-9, 1926). Blyth's description of *E. buchanani* is unmistakable, and his later assertion that it was the same as *E. hortulana* was unfounded, as has been shown long ago by Hume (Stray Feathers, 7, p. 150, 1878). See also Ticehurst, Journ. Bomb. Nat. Hist. Soc., 32, No. 2, p. 348, 1927.

[2]Ornith. Monatsber., 11, p. 130, 1903—Semiretchje Region, Turkestan.

specimen taken in India. If there are really two forms, which is rather questionable, it is the one from Persia that should be provided with a separate name.

The specimen from Agijas differs from adult females by much paler (pinkish buff instead of pinkish cinnamon) under parts, with the much broader blackish streaks on the chest extending on to the lower throat, and by lacking the yellow color on the throat. The bill is reddish as in the adults, but the edges to the wing coverts are paler. Neither the British Museum nor the Tring collection has a similar example, and I am inclined to take it for a female in first winter dress.

E. buchanani, though widely distributed between the Caspian Sea and the Altai, appears to be rather rare in the Tian Shan. According to Smallbones (p. 417), a single male was obtained by Almásy in August, 1900 at Ajuk-Tasez; Gyldenstolpe (p. 11) lists two males, and Kollibay (1916, p. 596) a female, all taken at Narynsk in June, 1910, while Laubmann (p. 62) records the species as rarely breeding in the Naryn Valley. It is apparently absent from the Tarim basin, though a single specimen was taken by the Second Yarkand Mission (Sharpe, p. 47) near Ighiz Yar, west of Yarkand, in Sarikol, on May 18, 1874.

Emberiza cia stracheyi Moore. Eastern Meadow Bunting.

Emberiza stracheyi MOORE, P. Z. S. Lond., 23, "1855," p. 215, pl. 112, pub. Feb., 1856—Kumaon.

KASHMIR: Gund (alt. 7,000 ft.), ♂ ad., May 21; Baltal (alt. 9,500 ft.), two ♂♂ ad., May 22, 23, 1925.

LADAK: Matayan (alt. 11,000 ft.), ♀ ad., May 25, 1925.

While not quite so dark as birds from the Simla Hills and Kumaon, the Meadow Buntings of Kashmir and Ladak are much deeper rufous both above and below than *E. cia par* Hart., from Turkestan and Transcaspia, although certain specimens in worn condition approach it very closely. Reexamination shows the two specimens from Lamayuru, referred by Oberholser (p. 224) to *E. cia*, to be bleached breeding birds of the present form.

E. cia stracheyi is stated to be common throughout Kashmir, and stretches into western Ladak, where it is notably found in the Dras and Suru valleys (Matayan, Moulbekh, Bod Kharbu, Kargil),[1] being very rare, however, in the Indus Valley and toward Leh.[2]

[1]See Wathen (Journ. Bomb. Nat. Hist. Soc., 29, p. 700, 1923) and Osmaston (op. cit., 31, p. 998, 1927).

[2]Meinertzhagen, Ibis, 1927, p. 394.

Birds from Gilgit, Chitral, and the Kaghan Valley seem to be intermediate between *E. c. stracheyi* and *E. c. par*, though nearer the latter. Abbott obtained specimens of this form in winter in Baltistan (Richmond, p. 465, s. n. *E. cia*).

Emberiza pyrrhuloides centralasiae Hartert. Tarim Thick-billed Reed Bunting.

Emberiza pyrrhuloides centralasiae HARTERT, Vogel Pal. Fauna, 1, p. 199, 1904—Maralbashi, Turkestan (type in British Museum examined).

CHINESE TURKESTAN: Maralbashi, Kashgar River, three ♂♂ ad. (completing annual molt), one ♂ juv., Sept. 27, July 26, 1925.

Additional specimens.—Maralbashi: two ♂♂ ad. (including the type), one ♀ ad., January, 1874. J. Biddulph (British Museum); Jungle east of Maralbashi, ♂ ad., ♀ ad., Feb. 1, 1894. W. L. Abbott (U. S. National Museum); Jungle upon Kashgar River, ninety miles east of Maralbashi, ♂ ad., Dec. 5, 1893. W. L. Abbott (U. S. National Museum); junction of Aksu and Kashgar rivers, two ♀♀ ad., Nov. 29, Dec. 2, 1893. W. L. Abbott (U. S. National Museum); Kashgar, adult, Jan. 31, 1874. F. Stoliczka, No. 1283; Yarkand, three ♂♂ ad., May 24, 1874. J. Biddulph and F. Stoliczka (No. 1781) (British Museum).

Wing of adult males.—91, 87 (type), 85, 85, 83, 83, 83, 83, 81, 81.

This series unquestionably represents a single form, closely similar to *E. p. pyrrhuloides*, from the shores of the Caspian Sea, but differing by its smaller, less swollen bill. There is, however, much individual variation in the size of this organ, and while in the majority the bill is very nearly as small as in the type specimen or even slightly smaller, a few birds, especially a couple from the jungle east of Maralbashi (U. S. National Museum, Nos. 150317-18), can hardly be told from *pyrrhuloides* on this score. Color differences do not seem to exist between the two races, though it must be admitted that the series of typical *pyrrhuloides* available for comparison is rather unsatisfactory. Dimensions vary a great deal, and the largest examples from eastern Turkestan attain the size of *pyrrhuloides*. The supposition that these large, thick-billed birds might be migratory visitors from other parts of Central Asia hardly needs consideration in view of the peculiar situation of the Tarim basin, surrounded as it is on three sides by lofty mountain ranges which are not likely to offer suitable haunts for these birds frequenting reeds and swamps. I am, therefore, inclined to attribute the difference in size to individual variation of the Tarim form.

E. p. centralasiae is, as far as our present knowledge goes, known only from the Tarim basin,[1] where it is reported to be a resident.

Scully (p. 166) found it in February and April on the edges of marshy ground and rice fields in Yarkand and vicinity. The Second Yarkand Mission, as recorded by Sharpe (p. 44), obtained specimens at Maralbashi (one of which became the type of *E. p. centralasiae*) and Kashgar in January, and others in May at Yarkand, where Stoliczka took several nests with eggs. Dr. W. L. Abbott, according to Richmond (p. 577), secured this Reed Bunting on the Kashgar River east of Maralbashi in the winter of 1893-94, while Oustalet, in his report on the co lections of Bonvalot and Prince Orléans (p. 19), lists it from Chunkul, near Kurla, and from Arkan, north of Chaklik, toward Lob Nor. One of our specimens, taken on July 26, at Maralbashi is in juvenile plumage, with dusky spots on the breast; while the three adults (September 27) are just completing their annual molt.

Owing to lack of sufficient material, the relations of *E. p. härmsi* (Sarudny)[2] and *E. p. harterti* Sushkin[3] to *E. p. centralasiae* cannot at present be ascertained.

Stresemann[4] is probably right in considering *E. pyrrhuloides* as conspecific with *E. schoeniclus*, but our knowledge of the breeding ranges of the various forms of Reed Bunting seems hardly complete enough to admit of final decision.

Calandrella brachydactyla dukhunensis (Sykes). Rufous Short-toed Lark.

Alauda Dukhunensis SYKES, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 2, p. 93, July 31, 1832--Dukhun, India.

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, ♂ ad., Sept. 2, 1925—Wing 96; tail 62.

On carefully comparing this specimen with the material in the British Museum, I cannot but refer it to *C. b. dukhunensis*, although I am well aware that the locality is rather unusual for this form. The bird—in perfectly fresh fall plumage—is much more buffy above than specimens in similar condition of *C. b. longipennis* from Turgai (Irgis River) and western Turkestan (Karakol, Oxus River; thirty miles southeast of Bokhara, etc.). On the other hand, it is

[1]Hartert (Vog. Pal. Fauna, 1, p. 199) extends its range east to Zaidam, Ala Shan, and Kara-ussu, N. W. Mongolia. Birds from the last-named locality are, however, likely to belong to some other form.

[2]Ornith. Monatsber., 19, p. 72, 1911—Sir Darya, Turkestan.

[3]Bull. Brit. Orn. Cl., 16, p. 56, 1906—Zaissan Nor, Semipalatinsk.

[4]Ornith. Monatsber., 33, p. 90, 1925.

not distinguishable from certain examples from southern Tibet, which Kinnear—no doubt correctly—assigns to *dukhunensis*, particularly an adult male taken by Wollaston on September 17, 1921, on the east side of Mount Everest (No. 365),[1] which is an exact duplicate of our bird as regards coloration of upper parts and chest. It must be admitted, however, that the Mt. Everest bird is the palest of the lot in the British Museum, all the other specimens from Gyantse and Sikkim as well as those taken in winter in the Indian plains being slightly more reddish above and more strongly shaded with rufescent across the chest.

According to Bianchi,[2] *C. b. dukhunensis* breeds in northeastern Tibet, from Ala Shan and Zaidam south to the Burchan Budda Range, whereas the breeding area of *C. b. longipennis* is stated to extend as far east as Kobdo, in Mongolia,[3] and Urumchi, at the northern base of eastern Tian Shan, in Dsungaria. Unless our specimen was already on migration, *C. b. dukhunensis* would seem, however, to range much farther west than was hitherto admitted.

Calandrella acutirostris acutirostris Hume. Hume's Short-toed Lark.

Calandrella acutirostris HUME in Henderson and Hume, Lahore to Yarkand, p. 265, 1873—Balakchi, upper Karakash, Sughet Range (type in British Museum examined).

LADAK: Matayan, Gumber River (alt. 11,000 ft.), ♂ ad., May 25; Panamik, Nubra, three ♂♂ ad., one ♀ ad., June 11, 13, 1925.

CHINESE TURKESTAN, HILL YARKAND: Sughet Karaul, upper Karakash (alt. 12,600 ft.), three ♂♂ ad., June 27, 1925.

Authors differ as to the proper identification of the Short-toed Larks from Ladak. While Osmaston (Ibis, 1925, p. 703; 1926, p. 447) and Meinertzhagen (Ibis, 1927, p. 395) refer them to *C. a. tibetana*, Ticehurst (Ibis, 1926, p. 233) claims they belong to *C. a. acutirostris*, and quite recently Ludlow (Ibis, 1928, p. 72), on Ticehurst's authority, declares the two races to be inseparable.

C. acutirostris was originally based on a single example obtained on August 5, 1870 by George Henderson at Balakchi, in the upper Karakash Valley, just north of Sughet Pass, in Hill Yarkand. Our

[1] Kinnear, Ibis, 1922, p. 518.

[2] Wiss. Res. Reisen Przewalski, 2, Birds, Part 4, p. 290, 1905.

[3] Sushkin (List and Distribution of Birds Russ. Altai and N. W. Mongolia, p. 67, 1925), however, separates the birds from the Altai Mts. and N. W. Mongolia as *C. b. orientalis*. His description does not fit the Agijas bird in so far as the under parts are stated to be more whitish (than in *C. b. brachydactyla*), washed with brownish gray on chest and sides.

specimens from Sughet Karaul are, therefore, topotypical. In proportions of the four outer primaries (which are nearly equal in length), general coloration, extent of white on the outermost rectrix, and dimensions, they agree with the type and other examples collected by Scully at Balakchi, in the British Museum. The type has an abnormally slender bill with very acute tip doubtless a mere deformity.

On comparing eight adults from the Sughet Range with a long series of *C. tibetana* Brooks,[1] including the type, from Sikkim and southern Tibet (Mt. Everest region), I fail to see any constant difference in the extent of the white area on the outer tail feather, which seems to vary within the same limits in the two series. Whether other color distinctions exist, is hard to say, as no fresh autumn specimens from the Sughet Range (*acutirostris*) are available. Breeding birds from the Mt. Everest region are certainly indistinguishable in coloration from those in corresponding plumage taken in the Karakash Valley. There is, however, a possibility that the maximum wing measurement is slightly greater in Sikkim and Tibetan birds[2] which have wings of from 92 to 99, the majority being around 95, the type of *C. tibetana* measuring 92 mm.; whereas the figures for the Sughet specimens (*C. acutirostris*) run from 92 to 95 mm. This trifling average difference, which is likely to disappear in a larger series, seems hardly sufficient to maintain the distinction of *tibetana*, as understood by British ornithologists.[3]

Birds from Ladak are on average even smaller than the Sughet birds. This is especially noticeable in specimens from the Nubra Valley and Matayan (wing of males 88-90), while others from the Indus Valley (Basgo and Leh), in length of wing (91-93), very nearly attain the measurements of the Sughet series. Whistler (Ibis, 1923, p. 622), however, gives the wing for five males from Spiti as ranging from 89 to 95 mm., which seems to indicate a certain amount of individual variation within the same locality.

I do not perceive any constant color differences in the Ladak

[1]Stray Feathers, 8, No. 6, "1879," p. 488, after March 23, 1880—Tibet, beyond Sikkim.

[2]In this connection it may be stated that the lark collected by Zugmayer near Rudok, in western Tibet, not far from the Indian frontier, and recorded as *C. brachydactyla dukhunensis* by Parrot (p. 258), on reexamination turned out to be referable to *"C. tibetana"* (wing 97).

[3]Birds from northeastern Tibet (Humboldt Range, Kukunor), however, may be separable, as claimed by Bianchi (Wiss. Res. Reisen Przewalski, 2, Birds, Part 4, pp. 288, 296, 1905), for a single specimen obtained by Donaldson Smith in Mongolia has much more white on the external tail feather than any other *"C. acutirostris"* or *"C. tibetana"* we have seen.

birds, and refer them without hesitation to *C. a. acutirostris*, to which three breeding females from the Tagdumbash Pamir likewise belong.

The breeding area of *C. a. acutirostris* thus extends from Baltistan and Ladak throughout the Himalayas and southern Tibet east to Sikkim, at elevations of 8,000 ft. and upwards. It is apparently not found in Kashmir proper, but stretches north to the Kuenlun (Karakash Valley) and thence west to the Pamir,[1] northern Baluchistan,[2] and Russian Turkestan.[3]

Calandrella rufescens seebohmi (Sharpe). Seebohm's Sand Lark.

Alaudula seebohmi SHARPE, Cat. B. Brit. Mus., 13, p. 590, 1890—"from Yarkand and Kashgar to Mongolia," no type locality specified (the type is from Turkestan, coll. Severtzow)

CHINESE TURKESTAN: Lailik-ótang, Yarkand River, ♀ ad. (worn breeding plumage), July 18; Charshamba Bazar, Yarkand River, ♀ (juvenile plumage), July 19, 1925.

The adult bird agrees with breeding specimens obtained by Scully near Yarkand and Karghalik, while the type, taken in April, is in better (less worn) plumage.

C. r. seebohmi may be distinguished from the other Asiatic races by its decidedly sand-colored upper parts. It breeds in the Tarim basin, but the eastern limits of its range cannot at present be given with any degree of accuracy.[4] Scully (p. 173) met with it in June near Yarkand, and in August at various localities in the vicinity of Karghalik. The Second Yarkand Mission, as recorded by Sharpe (p. 54), obtained it throughout the year in the plains of Kashgaria, securing specimens in the breeding season in the Karakash Valley and at Kugiar. Menzbier (p. 354) lists what is evidently the present

[1]Recorded by Richmond (p. 579) from the Tagdumbash Pamir; by Sharpe (p. 54) from Sarikol; by Bianchi (Wiss. Res. Reisen Przewalski, 2, Birds, Part 4, p. 286, 1905) from the Alichur and Akbaital Pamirs.

[2]In the Kalat and Quetta districts, according to Ticehurst (Journ. Bomb. Nat. Hist. Soc., 31, p. 875, 1927; o. c., 32, p. 353, 1927).

[3]Severtzow obtained breeding birds on the Badam River, Talas-tau, and on an affluent of the Chir-chik River, Chatkal-tau, east of Tashkent, in the westernmost spurs of the Tian Shan (see Bianchi, o. c., p. 286).

[4]Bianchi (Wiss. Res. Reisen Przewalski, 2, Birds, Part 4, pp. 322-328, 1905) extends it east to Ala Shan and the sources of the Hwang Ho, but he very likely included more than one form under *Alaudula seebohmi*, since birds from the eastern Gobi and adjacent districts appear to be smaller with slenderer bills, and are probably referable to *C. r. cheleensis* (Swinhoe). If they were all the same, *A. kukunoorensis* Przewalski, 1876, would have priority, provided that Bianchi is right in declaring the type to be an individual variant of the Sand Lark of northeastern Tibet.

form under the name "*Alaudula leucophaea*" from Kara-Khodja and Jaman-su; Richmond (p. 579) reports on specimens collected by W. L. Abbott on the south slope of the Tian Shan north of Kashgar, and at Karatol, 35 miles south of Aksu; Prince Orléans's party, as recorded by Oustalet (p. 16), met with it at the southern base of the Tian Shan early in October, 1889, and Schalow (1901, p. 447) mentions a single bird from Kara-julgan, erroneously referring it to *A. cheleensis*. Other localities in the Tarim basin are indicated by Bianchi.

I doubt whether this Lark is found anywhere west of the Pamir, and would suggest that the breeding record from Kushdil Khan, British Baluchistan,[1] is more likely to belong to *C. r. seistanica*, which is not always easily distinguishable, particularly in worn plumage.

Galerida cristata magna Hume. Hume's Crested Lark.

Galerida magna HUME, Ibis, (3), **1**, p. 407, 1871—"collected during the Yarkand Expedition"; the type is from Yarkand (see Lahore to Yarkand, p. 270, pl. 30).

CHINESE TURKESTAN, YARKAND: Echitgo (Carshamba Bazar), Yarkand River, ♂ ad. (breeding), July 16; Abad Charshamba Bazar, ♀ juv., July 19; Shamal, near Maralbashi, two ♂♂ ad., one ♂ juv., July 22; Yaka-kuduk, near Aksu, two ♂♂ ad., Sept. 22, 1925.

The series is topotypical. The type and other specimens from the Yarkand plains in the British Museum are similar.

This large sand-colored race of the Crested Lark finds the center of its distribution in the Tarim basin, ranging east to the Lob Nor. According to Scully (p. 175), it is one of the commonest birds in the plains of Kashgaria, where it is a permanent resident. The Second Yarkand Mission, as reported by Sharpe (p. 55), obtained it at various localities in the plains of Kashgar and Yarkand as well as at Sanju, in the foothills of the Kuenlun, at an elevation of about 6,000 ft., where it appears to breed, since Richmond (p. 580) lists two birds, including a young one, taken by W. L. Abbott early in August, 1893 at Kilian (alt. 6,000 ft.), somewhat farther west in the same region. Schalow (1901, p. 447) records a single bird from Jandaman, east of Kashgar, on the Kashgar River. In the north, *G. c. magna* reaches into the southern foothills of the Tian Shan, whence specimens were sent to Prof. Menzbier (p. 354) from near Kara-Khodja and from the Uital River, while Laubmann (p. 66) examined one from the lower South Musart River.

[1]See Ticehurst, Journ. Bomb. Nat. Hist. Soc., **31**, No. 4, p. 875, 1927.

G. c. magna is, furthermore, known to inhabit the N. W. Frontier Province, northern Baluchistan, and parts of Persia, but where it meets *G. c. vamberyi* Härms, described from Uch-Ajji in the Kara-Kum Desert, Transcaspia, remains to be ascertained. North of the main range of the Tian Shan and in western Turkestan (Tashkent, Chinaz) it is replaced by the barely separable *G. c. iwanowi* Loudon; in Gilgit, the adjoining section of the Indus Valley, and in Hazara, by the grayer *G. c. lynesi* Whistler.[1]

Alauda arvensis guttata Brooks. Kashmir Skylark.

Alauda guttata BROOKS, Journ. Asiat. Soc. Beng., **41**, (2), p. 85, 1872—"the common Skylark of the Kashmir plains."

KASHMIR: Sonamarg, ♂ ad., May 23, 1925.—Wing 100 mm.

Compared and found identical with Brooks's original series from Srinagar in the British Museum. Birds from Gilgit of which, however, only one is in comparable plumage (May) appear to be also referable to *A. a. guttata*, although some specimens closely approach *A. a. lhamarum*.

This is the only skylark breeding in Kashmir and Gilgit. W. L. Abbott's birds from Kashmir, at least those secured in the breeding season, recorded by Richmond (p. 467) as *A. a. intermedia*, and the specimens obtained by the Second Yarkand Mission at Sopur, Srinagar and Sonamarg and referred to *A. liopus* by Sharpe (p. 53), doubtless belong to the present form.

I agree with Hartert[2] that there is no reason for specific separation of the *gulgula* group (with short wing tip) from the true skylarks.

Alauda arvensis lhamarum Meinertzhagen. Ladak Skylark.

Alauda arvensis lhamarum MEINERTZHAGEN, Bull. Brit. Orn. Cl., **46**, p. 100, 1926—Ladak.

LADAK: Leh, three ♂ ♂, two ♀ ♀ ad. (nesting), June 3-5; Panamik, Nubra (alt. 10,600 ft.), one ♂, two ♀ ♀ ad., June 11, 1925.

This form, depicted under the inapplicable name *A. triborhyncha* on pl. 28 in "Lahore to Yarkand," comes very near to *A. a. guttata*, of Kashmir, which it resembles in short wing tip; but as pointed out by Meinertzhagen, in breeding plumage it is paler, less fulvous above, and the rufescent tinge across the chest is less extensive as well as paler in color. However, one of the males from Leh runs very close to the Kashmir race.

[1]Bull. Brit. Orn. Cl., **49**, p. 52, 1928—Gilgit Valley.

[2]Abhandl. Ber. Zool. Anthr.-Ethnog. Mus. Dresden, **15**, No. 3, p. 19, 1922.

A. a. lhamarum is widely diffused throughout the cultivated parts of Ladak, from the Dras Valley east to Pangong Lake, and north to Nubra.

It was recorded from Ladak by Hume (p. 268); from Leh and Tankse by Sharpe (p. 55, *A. leiopus*); from Leh by Richmond (p. 467, *A. a. intermedia*); from Shushot, Indus Valley, by Oberholser (p. 219, *A. a. leiopus*); from the upper Indus Valley and below Leh by Ludlow (p. 145, *A. a. cinerea*); from Dras and near Leh by Wathen (p. 701, *A. gulgula guttata*).

The Skylarks found by Whistler[1] in the Chandra Valley, Lahul, probably belong to the present form.[2]

Alauda arvensis intermedia Swinhoe. Eastern Skylark.

Alauda arvensis SWINHOE, P. Z. S. Lond., 1863, p. 89.—Shanghai, China.

CHINESE TURKESTAN: Ox-su, Tekes Valley, Tian Shan, three ♀ ♀ ad., one ♂ juv. (molting), Aug. 29; Shurbulak Pass, Pamir, west of Kashgar, three ♂ ♂, Nov. 1, 1925. —Wing of adult males (Shurbulak Pass) 106, 112, 117.

The Ox-su birds are in full molt, and the male is just passing from the juvenile into the first winter plumage. They are very different from the Indian races (*gulgula* group) by reason of their much more spotted chest and longer wing tip, and with the possible exception of very slightly browner upper parts, are not distinguishable from those taken at Shurbulak. It appears, therefore, that the Skylark, breeding in the valleys of the central Tian Shan, belong to the Siberian form, so common in the Indian plains in winter, which, as pointed out by Ticehurst (Ibis, 1922, p. 149), is entitled to the name *A. a. dulcivox* Brooks. More recently, however, Hartert has shown that there is but one rather variable race of skylark ranging all over northern Asia from western Siberia to the Amur and wintering in India and China. Its earliest name is the one given by Swinhoe, while *dulcivox* Brooks and *cinerascens* Ehmcke become synonyms.

The Skylark has been listed by Severtzow (1875, p. 175) among the breeding birds of the central Tian Shan (Issik-kul, Naryn Valley). Lönnberg (1905, p. 18) records a male in worn breeding dress

[1]Ibis, 1925, p. 193 (*A. arvensis intermedia*).

[2]Oberholser (p. 220) sought to revive the name *A. leiopus*, taking it from Hume (Stray Feathers, 1, p. 40, 1873), who had used it rather vaguely for the skylarks "from Ladak, Thibet, and the higher Himalayan plateau generally." Whatever may be decided about the acceptability of the term *leiopus* HUME, it does not affect *guttata* BROOKS, this form being restricted to Kashmir on the other side of the Great Himalayan Range.

[3]Abh. Ber. Zool. Anthr.-Ethnolog. Mus. Dresden, 15, No. 3, p. 19, 1922.

from Baimgol River, a tributary of the Tekes, s. n. *A. a. cantarella*, and Kollibay (1916, p. 597) describes a young bird and a clutch of eggs from Narynsk.

The Horned Larks.

Identification of the skins in the Roosevelt Collection led to a complete revision of the Himalayan and South Turkestan forms. Besides the material in the U. S. National Museum, including Oberholser's types which had never been critically examined before, and several important specimens in the Paris Museum, I had the advantage of studying the large series in the British Museum as well as those at Tring and in Col. Meinertzhagen's private collection, while Mr. Outram Bangs kindly placed the rich Chinese material of the Museum of Comparative Zoology, Cambridge, Mass., at my disposition.

Before discussing the three races represented in the collection, a few general remarks about the distribution and plumages of the Horned Larks may be appropriate. During the breeding season, the Horned Larks of Central Asia are restricted to the Temperate Zone of the mountains, and are seldom found below 6,000 feet, the center of their habitat being between 10,000 and 15,000 feet. In the fall they desert the elevated regions, and repair to the valleys and plains where they spend all winter and the early part of spring. I am inclined to agree with Hartert, Meinertzhagen, and other recent authorities in considering all the numerous "species" and "subspecies" of Horned Larks in both hemispheres as geographical races of one "formenkreis." As far as the mountain chains bounding the southern border of the Tarim basin are concerned, certainly not more than one form breeds in any one district, and it seems extremely unlikely that the presence or absence of a connection between the black jugular band and the black area on the sides of the head—the principal character used by Bianchi for splitting the Horned Larks into several specific groups—is of more than racial value. In all of the forms breeding from Kashmir east through the Himalayas to Tibet and western China, there is a distinct white gap on the sides of the neck, and it is not until we reach the Tagdumbash Pamir in the west that we meet with a race in which the two black areas join each other without interruption. According to Bianchi and Sushkin (in litt.), however, representatives of both types coexist during the breeding season in certain mountain ranges of Russian Turkestan. Dr. Sushkin (in litt.) claims that *C. penicillatus albigula* and *C. brandti montanus* (which he calls a very poor form,

hardly distinguishable from *brandti*) breed together in the Russian Pamir, Alai, Transalai, and Tian Shan, and that "the evidence is as complete as possible, birds of both types being killed at the same day and on the same small lake," as shown by the material in the Leningrad Museum. Still I hesitate to accept this as a definite proof of their specific distinctness, since both Bianchi and Sushkin admit the occurrence of so-called "hybrids" between the two alleged species. I venture to suggest as a more plausible explanation that the extent of the black area might be a variable feature in certain races, whereas in others like *longirostris*, *argaleus*, *elwesi*, *teleschowi*, *khamensis*, etc. it has become an absolutely constant character.

For comparative purposes, specimens taken immediately after completing their annual molt in August and September are preferable to any others, but are not always available. In worn plumage, the vinaceous tinge on the hind crown and nape is deeper, the dusky streaking of the back becomes more pronounced, and the pale edges to the black of the crown, cheeks, and jugular band almost completely disappear through wear. In making comparisons between different forms, care must be taken to use specimens in corresponding plumage.

Chionophilos[1] **alpestris longirostris** (Moore). Long-billed Horned Lark.

Otocoris longirostris (Gould MS.) MOORE, P. Z. S. Lond., 23, "1855," p. 215, pl. 111, pub. Feb., 1856—"neighborhood of Agra," errore; the types examined in the British Museum were obtained by Major Hay in Kulu.

LADAK: Fotu La (alt. 1,800 ft.), ♂ ad., May 23, 1925.

The Horned Larks of Ladak have lately been much discussed. Osmaston[2] maintains that *C. a. elwesi* is the common species throughout that country except in the extreme west along the slopes of the Great Himalayan Range, where (as well as in the Pir Panjal Range in Kashmir) it is replaced by *C. a. longirostris*. Ticehurst[3] gives the range of *elwesi* as extending as far west as the Tso Kar, Tso Morari, and Pangong Lakes in Ladak and north to Aktagh, north of the Karakoram Pass, while *longirostris*, according to his conception, inhabits Spiti, Lahul, Kulu, and the rest of Ladak, except the Deosai

[1] *Chionophilos* (PETÉNYI in litt.) BREHM (Handb. Liebh. Stuben- und Hausvogel, p. 296, 1832—type by monotypy *Alauda alpestris* LINNAEUS) has priority over *Otocoris* BONAPARTE, 1838. See Laubmann, Verh. Orn. Ges. Bay. 15, p. 222, 1922.

[2] Ibis, 1925, pp. 702, 703; 1926, p. 447; Journ. Bomb. Nat. Hist. Soc., 32, pp. 135, 186, 1927.

[3] Ibis, 1926, p. 233; Journ. Bomb. Nat. Hist. Soc., 32, p. 352, 1927.

Plain. Meinertzhagen (Ibis, 1927, pp. 400-402) separates the birds of the Deosai Plateau as *C. a. deosai*, and includes the rest of Ladak in the range of *C. a. longirostris*, pointing out at the same time that specimens from eastern Ladak are variously intermediate to *C. a. elwesi*. With this disposition of the case I am inclined to agree except that I cannot recognize *C. a. deosai*, unless this name be used for the birds of western Ladak, Kashmir, Baltistan, and Kaghan as a whole, in opposition to *longirostris* of eastern Ladak, Rupshu, and Spiti.

Adult males from Kaghan (N. W. Frontier Province), Darel, Baltistan, Deosai, Burzil Pass, and western Ladak (Dras Valley; Moulbekh; Namika La; Fotu La) agree with each other in long bill, large size, and in having the forehead down to the base of the bill buffy white, the anterior nasal plumes alone being black. Out of twenty, only one (from Lamagoos Pass) has a narrow black frontal band which, though barely interrupted in the middle, is far less developed than in *C. a. elwesi*. In worn (breeding) plumage, the upper parts are rather pale, heavily streaked with dusky on the back, while the hind part of the neck is but slightly tinged with vinaceous buff or pale vinaceous fawn. Specimens in fresh (fall) plumage are exceedingly scarce in collections, the only one I have been able to examine being an adult male obtained by W. L. Abbott on September 23, 1891 in the mountains of central Kashmir in the neighborhood of Srinagar, at an elevation of 11,000 ft. (U. S. National Museum, No. 125528). This bird is even paler vinaceous on the hind neck than the series in breeding plumage, and the back looks almost uniform, the dusky central portion of the feathers being wholly concealed by the broad pale margins. The type of *E. a. deosai* Meinertzhagen,[1] taken on August 24, 1925 on the Deosai Plateau, alt. 13,200 feet, appears to me indistinguishable, the newly grown feathers of the dorsal plumage being neither darker nor browner, as claimed by its describer. From the material examined, I am led to the conclusion that there is but one race in the northwestern Himalayas east to the Fotu La, which is remarkably constant in its characters.

Birds from eastern Ladak, on the other hand, exhibit a good deal of variation in dimensions as well as in length of bill and coloration of forehead. Of three adult males secured by Col. Meinertzhagen on May 9, 1925 at Leh (in flocks, not breeding), one has the forehead buffy white (with only the anterior nasal plumes black) like Kashmir birds; the second has just a narrow black edge; the third has a well-

[1]Bull. Brit. Orn. Cl., 46, p. 84, 1926—Deosai Plateau.

defined black frontal band like *elwesi*. In length of bill, they hold an intermediate position between *elwesi* and the west-Ladak form. Males from the vicinity of Pangong Lake (Tsultak; Lukung; Tankse; Phobrang) are even more variable, those with long bills and white forehead being inseparable from Kashmir birds, while the smaller, short-billed individuals with black frontal band can hardly be told from *elwesi* of Sikkim and southern Tibet. This variation accounts for the creation of two alleged new species, *O. longirostris perissa* Oberholser,[1] based on an adult male (in worn breeding dress) obtained by W. L. Abbott on July 11, 1897 at the Tsokr Chumo Lake, near Debring, Rupshu, and *O. wellsi* Babault,[2] established on an adult male from Serchu, Lahul, taken on July 12, 1914. Whistler[3] has already pointed out that his series from Lahul and the Rhotang Range showed every graduation from a white forehead extending down to the end of the nasal plumes to a black frontal band about 2 mm. wide, and that the variation was purely individual. Moreover, *O. longirostris* was originally described from Kulu, and comparison of the two above mentioned types with Major Hay's original series in the British Museum proved them to be identical. The type of *O. longirostris* and a second male collected by Hay are of the white-fronted, long-billed variety, while a third male from Kulu is a small-billed specimen with distinct black frontal band, differing from *elwesi* merely by slightly larger size.[4] However, certain examples, particularly one from Phobrang in Col. Meinertzhagen's collection, even in dimensions fall well within the measurements of *C. a. elwesi*, as represented by a large series from Sikkim and the Mount Everest region. From the few specimens at hand, it would appear that in fresh fall plumage birds from the Pangong Lake[5] are slightly darker above, with a stronger vinaceous tinge on the hind neck, than those from Deosai and Kashmir, and closely resemble Sikkim birds in similar condition. It thus seems evident that southeastern Ladak, Rupshu, Kulu, and Lahul are largely inhabited by intergrades between the long-billed, white-fronted form and the smaller, black-fronted *elwesi*, and it is unfortunate that *O. longirostris* was based on a specimen from this "contact zone" (to use Meinertz-

[1]Proc. U. S. Nat. Mus., 24, p. 869, 1902 (type in U. S. National Museum examined).

[2]Mission Babault, Rés. Scient., Ois., p. 203, pl. 4, 1920 (type in Paris Museum examined).

[3]Journ. Bomb. Nat. Hist. Soc., 29, p. 560, 1923.

[4]Whistler (Journ. Bomb. Nat. Hist. Soc., 31, p. 474, 1926) actually refer Hay's specimens to two races, *O. a. longirostris* and *O. a. elwesi*.

[5]No fall specimens are available from either Kulu or Rupshu.

hagen's expression) where pure-blooded individuals are of rather rare occurrence. How far this zone of intergradation extends in the east, cannot at present be determined, owing to lack of material from Garhwal, Kumaon, and Nepal.

Males from Sikkim and the adjoining section of southern Tibet (Telepla, Tingre, Phari), on the other hand, are quite constant in their characters. They are small with short bills, and always show a conspicuous black frontal band, from 2 to 4 mm. wide. In worn plumage, they are strongly tinged with vinaceous (ranging from light vinaceous russet to sorghum brown) on the hind neck and upper mantle, and compared to specimens in corresponding dress from western Ladak and Kashmir, they are much more deeply colored as well as less heavily streaked above. In addition to the series obtained by Wollaston during the Mount Everest Expedition and numerous native Sikkim skins, I have examined two adult males, including the type of *O. elwesi* Blanford,[1] from Kongra Lama Pass (alt. 15,000 feet), Sikkim, collected by H. J. Elwes early in October, 1870. It appears to me extremely doubtful whether *O. nigrifrons* Przewalski, from northeastern Tibet (Kukunor; Nan Shan) and western Kansu, recently revived by Bangs and Peters,[2] is really separable from *C. a. elwesi*. The supposed difference in size does not exist. Males from Sikkim and the Mt. Everest region measure on the wing from 113 to 120; those from northeastern Tibet and Kansu, from 111 to 121 mm. As far as coloration is concerned, *nigrifrons* is very slightly paler above in both fresh and worn plumage. Unfortunately, no adequate series from the range of *elwesi* is available for direct comparison with the twenty-four skins from the Kukunor region kindly lent by Mr. Outram Bangs.

C. a. longirostris, under which name I propose to unite the Horned Larks of the western Himalayas from Kaghan east to the Sutlej Valley (or possibly even Kumaon), appears to find the northern limit of its distribution in the Karakoram Range. Five adult males collected on the Sassir La by Col. Meinertzhagen late in July, 1925 are perfectly typical of the west-Ladak form, being long-billed and white-fronted (with only the anterior nasal plumes black), though by slightly smaller size (wing 120 to 125) and paler back they exhibit a certain trend in the direction of the next form.

[1]Journ. Asiat. Soc. Beng., 41, Part 2, p. 62, 1872.
[2]Bull. Mus. Comp. Zool., 68, p. 369, 1928.

Chionophilos alpestris argaleus (Oberholser). Sughet Horned Lark.

Otocoris longirostris argalea OBERHOLSER, Proc U. S Nat. Mus., 24, p. 871, 1902—Sughet Pass, "Kuen Lun Mts." – Sughet Range (type in U. S. National Museum examined).

CHINESE TURKESTAN, HILL YARKAND: Sughet Pass (alt. 16,000 ft.), two ♂ ♂ ad., one ♀ ad. (breeding), June 26; Sughet Karaul, two ♂ ♂ ad., June 27, 1925.

The type obtained by W. L. Abbott on the Sughet Pass on July 28, 1893 agrees with our males except in having a slightly narrower black frontal band. In addition, I have examined in the British Museum four adult males and two females collected at Aktagh on the upper Raskam Darya, a little to the south of Sughet Pass, in June, 1874 by J. Biddulph and F. Stoliczka. Four adult males in the Hume Collection, labeled "Yarkand, J. Biddulph", belong likewise here, though they are in somewhat fresher (less worn) plumage. Of course, they did not come from Yarkand City, but were doubtless secured somewhere in Hill Yarkand, either at Sughet or Aktagh.

C. a. argaleus, though ignored by all recent authorities, appears to be a good form, somewhat intermediate between *C. a. elwesi*, of southern Tibet, and *C. a. teleschowi* (Przewalski), of the western Kuenlun. On comparing the thirteen males with an equal number of breeding specimens of *elwesi*, those from the Sughet Range are immediately distinguished by their much paler, more sandy upper parts. The hind crown and nape are much lighter and less rufescent, varying from vinaceous fawn to vinaceous buff, this color gradually passing into avellaneous on back and rump, with but a few indistinct dusky streaks on the lower back. In *elwesi* (including *nigrifrons*), the vinaceous color is much deeper, ranging from light russet vinaceous to sorghum brown, and is sharply defined posteriorly; the ground color of the back, while not different in tone, gives a darker impression by reason of the dense, well pronounced dusky streaking of the mantle and rump. In size, small short bill, and distinct black frontal band, the two races are practically identical. Females of *argaleus* are merely separable by their paler, more sand-colored upper parts.

The series of males is remarkably constant except for a certain variation in the extent of the black on the forehead, which is, however, not greater than in the allied *C. a. elwesi*. The black jugular band is separated from the black cheeks by a distinct white gap.

According to our actual knowledge, *C. a. argaleus* is restricted to the Sughet Range (Sughet Karaul, Sughet Pass, Aktagh), though it may be expected to extend into the Raskam Range. Its breeding area certainly does not reach to the main Karakoram, for a series of adult males (from late July) from the Sassir La in Col. Meinertzhagen's collection, as stated under the preceding form, are undoubtedly referable to *C. a. longirostris* ("*deosai*" type, with entirely white forehead and long bill).

Farther north, on the *northern* slope of the western Kuenlun (Khotan-tagh, Keriya Range, Russian Range), the very distinct *C. a. teleschowi* (Przewalski) is found. This race is very similar to *C. a. argaleus*, but even paler above; besides, it is somewhat smaller, with a larger bill and, furthermore, easily distinguished in the male sex by the complete absence of the white postfrontal band, the whole anterior crown from the base of the bill to the occiput being uniform black, while the female differs by lacking the whitish forehead. I have seen two adult males, taken by M. W. Pewtzow in June, 1890, at Karasai, Russian Range; another male from the same range, secured by Przewalski in May, 1885; and a breeding female (with eggs), collected by Rückbeil in May, 1903, in the Altyn-tagh, south of Lob Nor, all in the Tring Museum. Bianchi[1] records breeding adults and young birds from Tochtachon (alt. 9,000 feet), north of the Raskam Range, and from various places between the Khotan Darya and Cherchen Darya. In the nesting season, this form inhabits the mountain slopes between 6,000 and 10,000 feet, but in winter it repairs to lower altitudes. According to Bianchi,[2] an adult male obtained by F. Stoliczka at Karghalik on Nov. 9, 1873,[3] belongs likewise to *C. a. teleschowi*.[4]

Chionophilos alpestris dilutus (Sharpe). Pamir Horned Lark.

Otocorys pallida (not of DWIGHT, April, 1890) SHARPE, Cat. B. Brit. Mus., 13, p. 533, later than May 10, 1890—"Central Asia;" the type examined in the British Museum was collected by J. Biddulph at Kashgar, eastern Turkestan.

Otocorys diluta SHARPE, o. c., p. 670, 1890—new name for *O. pallida* SHARPE nec DWIGHT.

CHINESE TURKESTAN: Kisil Bulok, South Musart River (alt. 6,300 ft.), Tian Shan, two ♂♂ ad., one ♀ ad., one juv., Sept. 16, 17, 1925.

[1]Wiss. Res. Reisen Przewalski, 2, Birds, p. 251, 1905.

[2]Bull. Acad. Sci. St. Pétersb., (5), 23, p. 209, 1905.

[3]*O. elwesi* SHARPE (p. 50), No. 940.

[4]The birds, ♀ ad. and juv., from the vicinity of Sanju, recorded by Scully (p. 174) as *O. penicillata*, probably were also *C. a. teleschowi*. Unfortunately, their present location is unknown.

In addition, Field Museum has several winter specimens from Narynsk, Tian Shan, and the U. S. National Museum supplied the type of *O. p. oreodrama* Oberholser[1] from the Tagdumbash Pamir, an adult female from Turugart Pass (12,000 ft.), Tian Shan, and three adults from Bulun-kul, Sarikol, collected by W. L. Abbott. This material has been carefully compared with the series from eastern Turkestan and Gilgit in the British Museum and Tring Collection, but owing to the lack of an adequate number of breeding birds the results are not quite satisfactory.

Specimens from Kisil Bulok, Turugart Pass, Karghalik, and Kashgar, all winter birds taken between September and March, are doubtless identical with the type of *O. diluta*, from Kashgar (December, 1873), although the upper parts are slightly variable in tone. One of our specimens from Kisil Bulok being in juvenile plumage, it may reasonably be assumed that *C. a. dilutus* is the Horned Lark breeding in the Tian Shan along the northern border of the Tarim basin.

Not a single breeding bird from any locality in the central Tian Shan is available for comparison. Among the numerous winter specimens from Narynsk and Issik-kul, there are a good many that cannot be distinguished from the two males from Kisil Bulok in the Roosevelt Collection. If Hartert (Vög. Pal. Fauna, **1**, p. 262) is correct in applying to them the name *albigula* Bonaparte, the distinction of *diluta* from that form is perhaps questionable.

The type of *O. p. oreodrama*, an adult male in breeding plumage, was obtained by W. L. Abbott on June 16, 1894 in the Tagdumbash Pamir, at an elevation of 12,000 feet. Aside from being less worn, it is identical with two adult males (taken together with an adult female and three young birds in spotted plumage) from the Shandur Plateau, western Gilgit, in the British Museum. An adult male in fresh fall plumage from the Tagdumbash Pamir (alt. 14,000 ft.), secured on October 29, 1897 and preserved in the same institution, is an exact duplicate, both in size and coloration, of the type of *O. diluta*, while three adults (April) from Bulun-kul, road to Sarikol, in the same general region are decidedly more sandy above than any other specimen of *diluta*. Sixteen birds from Gilgit, collected by Biddulph and Scully between October and March, are grayer, agreeing with the average from Kashgar and the southern Tian Shan. One adult male, Nov. 17, 1879, J. Scully, in the Tring Museum, however, is fully as sand-colored as the Bulun-kul birds.

[1]Proc. U. S. Nat. Mus., **24**, p. 876, 1902.

The variation thus seems to be individual rather than racial and, for the present, I do not see my way clear to separate *oreodrama*, of the Pamir and Shandur Plateau, from *C. a. dilutus*.

C. a. dilutus is very similar to *C. a. argaleus*, from the Sughet Range, differing only by more heavily streaked back and by having the black of the cheeks confluent with the black jugular band,[1] and evidently replaces it in the mountains along the western border of the Tarim basin, reaching south into extreme northwestern India (Chitral-Gilgit frontier). In winter it is common in the plains of Kashgaria.

MEASUREMENTS OF ADULT MALES

C. a. dilutus	WING	BILL
Two from Tagdumbash Pamir[2]	118,119	11½,12
One from Bulun-kul, road to Sarikol	118	12
Two from Kisil Bulok, S. Musart River	114,115	11,11
Twelve from Kashgar[3]	112,113,114,115,116,117, 118,120,120,121,123,123	10½-12
Three from Karghalik	116,117,122	12
One from Karakol, Tian Shan	120	13
Three from Narynsk, Tian Shan	114,114,116	11,12,12
C. a. longirostris		
Two from Kaghan, N. W. Frontier Province	121,125	16,16
One from central Kashmir (above Srinagar)	132	15
One from Baltistan	128	15
Two from Darel, Gilgit	122,124	14½,15
Five from Burzil Pass, Gilgit	126,126,127,128,129	15,16,16,16,16
Three from Deosai Plateau[4]	125,130,130	15½,16,16
Two from Dras, W. Ladak	125,128	15½,17
One from Lahor (east of Dras), W. Ladak	127	16
Two from Moulbekh, Ladak	122,125	15,16
One from Namika La, Ladak	128	17
One from Fotu La, Ladak	124	15
Five from Sassir La, Karakoram, N. Ladak	120,123,123,125,125	15,15,15½,15½, 16
Three from Leh, Ladak	122,124,125	13,14,14½
One from Tankse, E. Ladak	118	12
Two from Tsultak, E. Ladak	122,125	13,13½
One from Lukung, E. Ladak	128	14
Two from Phobrang, E. Ladak	117,120	11½,12

[1]Hartert's diagnosis (in Vog. Pal. Fauna, 1, p. 259) of *O. a. diluta* is altogether misleading, and the distribution refers but partly to that form. Later (o. c., 3, p. 2092, 1921) he correctly states that the black of the sides of the head and that of the jugular band are united in *O. a. diluta*. The specimens labeled "Yarkand. J. Biddulph" in the British Museum are not *elwesi*, but *argaleus*, as we have shown under the preceding heading.

[2]Including type of *O. p. oreodrama*.

[3]Including type of *O. diluta*.

[4]Including type of *E. a. deosai*.

Three, from Pangong Lake, E. Ladak	— ,120,129	12,12½,15
One from Tsokr Chumo Lake, Rupshu[1]	125	13
One from Debring, Rupshu	120	[13]
One from Serchu, Lahul[2]	125	14[1],
Three from Kulu	122,125(type),128	12,16(type),16
C. a. elwesi		
Eighteen from Sikkim[4]	116-118,119(once), 120(three)	11-12
One from Gyantse, Tibet	115	12
One from Phari, Tibet	119	12
Six from Tingre, Tibet	113,114,114,115,117,120	11,12,12,12,12,12[1]/2
C. a. argaleus		
Three from Sughet Pass[5]	118,120,122	12,12,12
Two from Sughet Karaul	119,120	12,12
Four from Aktagh	114,115,116,119	12,12,12,13
Four from "Yarkand"	117,120,121,122	12,12,12,13
C. a. teleschowi		
Three from Russian Range (Karasai)	106,109,113	13,13½,14

Anthus roseatus Blyth. Hodgson's Pipit.

Anthus roseatus (Hodgson MS.) BLYTH, Journ. Asiat. Soc. Beng., **16**, (1), p. 437, 1847—Nepal.

KASHMIR: Baltal (alt. 9,600 ft.), ♂ ad., May 23, 1925.

The late date seems to indicate that this bird, which is in perfect nuptial plumage, was breeding. The conclusion that the species does breed in Kashmir also results from Abbott's taking of specimens late in July in the mountains near Srinagar at altitudes of 11,000 and 12,000 feet, as recorded by Richmond (p. 470). Besides, Bates (Journ. Bomb. Nat. Hist. Soc., **29**, p. 800, 1923) states that he found these pipits nesting in large numbers between the Sind and Liddar valleys, from 11,000 ft. up to the snow-level.

A. roseatus visits Ladak and Gilgit only on migration, though Biddulph (Ibis, 1882, p. 280) received specimens shot in July from Darel, and Whitehead (Ibis, 1909, p. 244) found it breeding on the Safed Koh. It is much more plentiful in the eastern Himalayas, in Rupshu (Babault, p. 201), Lahul (Whistler, Ibis, 1925, p. 190), Garhwal, Nepal, and thence ranges through southern Tibet to Kansu and Kukunor. Przewalski found it in the Russian Range and Keriya Range, along the southern border of the Tarim basin.

[1]Type of *O. l. perissa*.
[2]Type of *O. wellsi*.
[3]Including type of *O. longirostris*.
[4]Including type of *O. elwesi*.
[5]Including the type.

Budytes citreolus calcaratus (Hodgson).[1] Hodgson's Yellow-headed Wagtail.

Motacilla calcarata HODGSON, Asiat. Resear., **19**, p. 190, 1836—Nepal.

LADAK: Lotsun, Wakka-Chu River, near Bod Kharbu (alt. 9,500 ft.), ♂ ad., May 28; Panamik, Nubra, ♂ ad., ♀ ad., June 13, 14, 1925.

Ladak birds agree with others from Nepal in the British Museum. This form of the Yellow-headed Wagtail breeds throughout the Himalayas from the Afghan border east to southern Tibet. The northern limit of its breeding range is not easy to determine. According to Sushkin,[2] it extends as far north as Narynsk (western Tian Shan), Guchen (north foot of the eastern Tian Shan), Mongolia, and Ordos. From the information at hand, it is doubtless the black-backed form that breeds in the Tian Shan, where specimens were taken during the nesting season by Severtzow (1875, p. 175), Akulin (Gyldenstolpe, p. 12), and Merzbacher (Laubmann, p. 70). The first-named author[3] lists it also as being abundant near the sources of the Kashgar Darya.

A series from the plains of Kashgaria (Mesha Yakshamba Mazar, July 17; Maralbashi, Kashgar River, July 28, 29) and the *southern* foothills of the Tian Shan (Conishar, six miles northeast of Aksu, Aug. 7, 8, 1925) in the present collection I am, however, unable to allocate satisfactorily. Aside from two birds in juvenile plumage, they are all either excessively worn breeding females or in the process of molting into the winter dress. None has any black on the back, and their tarsi are decidedly shorter than in *B. c. calcaratus*. This leads me to the conclusion that they must be referable to one of the gray-backed races,[4] although the unsatisfactory condition of the material does not permit a decision as to whether they are *B. c. citreolus* or *B. c. werae* Buturlin.[5] The nearest breeding colony of a gray-backed form seems to exist near Jarkent, on the upper Ili, Turkestan, which Sushkin (o. c., p. 38) associates with *B. c. citreolus*, while Ticehurst[6] refers birds from that locality to *B. c. werae*. The only measurable male has a wing of 83 mm., and the flanks are barely tinged with grayish, both features speaking for *werae* rather than *citreolus*.

[1]About the substitution of the subspecific name *calcaratus* for *citreoloides*, see Ticehurst, Bull. Brit. Orn. Cl., **41**, p. 81, 1921, and Journ. Bomb. Nat. Hist. Soc., **28**, p. 1085, 1922.

[2]Proc. Boston Soc. N. H., **38**, p. 40, 1925.

[3]Ibis, 1883, p. 63.

[4]Scully (p. 151) actually identified the Yellow-headed Wagtail breeding in the Tarim basin as *B. citreola*.

[5]Ornith. Monatsber., **15**, p. 197, 1907.

[6]Bull. Brit. Orn. Cl., **46**, p. 114, 1926.

Motacilla cinerea caspica (S. G. Gmelin).[1] Eastern Gray Wagtail.

Parus caspicus S. G. GMELIN, Reise Russl., 3, p. 104, pl. 20, fig. 2, 1774 Enseli, Ghilan, northern Persia.

KASHMIR: Gund (alt. 7,000 ft.), ♀ ad., May 21; Baltal (alt. 9,500 ft.), ♂ ad., May 23, 1925.

LADAK: Leh, ♂ ad., June 3, 1925.

CHINESE TURKESTAN: Shatta, Tekes Valley, Tian Shan, two ♂♂ ad., one ♀ ad. (winter plumage), Aug. 23, 24, 1925.

The Eastern Gray Wagtail appears to breed locally in the Himalayas. Whitehead (Ibis, 1909, p. 240) records it as "nesting freely along the streams of the Safed Koh, from 6,000 to 8,000 feet." Whistler (Ibis, 1925, p. 187) found it "common in summer along the banks of the Chandra and Bhaga rivers from Chaturu to Darcha," in Lahul, and Babault (p. 198) also lists a female taken late in June at Sisa, Lahul. In Ladak, while not rare on migration, it seems to be rather uncommon in the breeding season. Wathen (p. 701) mentions having found a nest near Leh (about 11,500 ft.); Meinertzhagen (Ibis, 1927, p. 405) met with the species at Gya (about 12,000 ft.) in early July; and Osmaston (Ibis, 1925, p. 700) says that it is generally distributed in Ladak up to 13,000 feet, but nowhere common. Abbott, as reported by Richmond (p. 468), obtained specimens in late July and August in the Pir Panjal Range and other parts of Kashmir, and Bates (Journ. Bomb. Nat. Hist. Soc., **29**, p. 800, 1923) encountered it on the Madmatti, from Sonerwain onwards, at the end of May.

Motacilla alba alboides Hodgson.[2] Hodgson's Wagtail.

Motacilla alboides HODGSON, Asiat. Researc., **19**, p. 191, 1836 Nepal.

LADAK: Shimsa Kharbu, Dras River, ♂ ad., May 26, 1925.

Identical with other males in nuptial plumage from the Himalayas in the British Museum.

The nesting area of Hodgson's Wagtail comprises a large section of the Himalayas. In Kashmir and Ladak[3] as well as in Baltistan it is the only breeding form of this group, being generally distributed

[1]This is an earlier name for *Motacilla cinerea melanope* PALLAS, 1776. See Laubmann, Ornith. Monatsber., **30**, p. 89, 1922.

[2]As pointed out by Oberholser (p. 222), this name has priority over *M. hodgsoni* BLYTH, 1865. See also the remarks by Brooks (Stray Feathers, **2**, pp. 139-140, 1878) and Hume (op. cit., pp. 519-520, 1879).

[3]Osmaston (Ibis, 1925, p. 700; Journ. Bomb. Nat. Hist. Soc., **32**, p. 134, 1927) records *M. alba personata* from Shushal on the Indus, describing the nest and eggs; but the female (shot off the nest) was found by Meinertzhagen (Ibis, 1927, p. 406) to be *M. a. alboides*. Hartert (Vög. Pal. Fauna, **1**, p. 307), by mistake, excludes Kashmir from the range of *M. a. hodgsoni*.

throughout the valleys and along the water courses up to nearly 15,000 feet. Eastward it extends through Rupshu, Lahul, Kulu, Spiti, Garhwal, and Kumaon to Nepal, Sikkim, southern Tibet, and western China,[1] and northward to the Kuenlun, where Henderson secured "specimens in nearly full breeding plumage" on the Chuchu Pass, recorded by Hume (p. 223) as "*M. luzoniensis.*" I was at first inclined to question the correctness of this identification; but Mr. Kinnear (in litt.) tells me that the example in the British Museum is an undoubted *alboides*. In Gilgit, both gray-backed and black-backed males are stated by Scully (Ibis, 1881, p. 451) to occur during the nesting season, and it is quite possible that *M. a. personata* and *M. a. alboides* intergrade in that section. However, Mr. Kinnear (in litt.) writes that a male, obtained by J. Biddulph in Gilgit, alt. 8,000 ft., on June 28, is typical *alboides*.

Motacilla alba personata Gould. Masked Wagtail.

Motacilla personata GOULD, Birds of Asia, 4, pl. 63, 1861—"native country believed to be Bengal and the central and northern parts of Hindustan."

CHINESE TURKESTAN: Sanju Bazar, Sanju River, (alt. 6,600 ft.), Hill Yarkand, ♂ (juvenile plumage), July 5; Maralbashi, ♂ (juv. plumage), July 25; Shamal, near Maralbashi, ♀ juv., July 22; Conishar, six miles northeast of Aksu, ♀ ad. (winter), Aug. 8; Shatta, Tekes Valley, Tian Shan, ♂ ad. (winter), ♂ (juv. plumage), Aug. 24, 1925.

The juvenile plumage, in disagreement with Hartert's[2] description, does not differ in coloration of under parts from that of *M. a. alba*, chin and throat being whitish, separated from the white of the abdomen by a grayish brown jugular band, tinged with buff; it has, however, much more white on the wing than the European form.

M. a. personata is the breeding form of the Tarim basin where, according to Scully (p. 150), it occurs in great numbers throughout the plains. Both Henderson (p. 224) and Scully found it at Oi Tograk; the Second Yarkand Mission (Sharpe, p. 56) at Yarkand and Karghalik; Abbott, as recorded by Richmond (p. 580), at Kilian (August 9, 1893). In the south, it ascends the foot hills of the Kuenlun to certain altitudes, as is shown by the young bird from Sanju Bazar (6,600 ft.) in the present collection. Henderson had already taken adults and nestlings in practically the same region along the Arpalak River, and Parrot (p. 257) lists an adult male from Khotan (May 22) in his report on Zugmayer's collection. Besides,

[1]According to Riley (Proc. U. S. Nat. Mus., 70, art. 5, p. 53, 1926), birds from Szechwan and Yunnan have less white on the wing than those from Kashmir.

[2]Vög. Pal. Fauna, 1, p. 307.

M. a. personata was found by Przewalski[1] on the north slope of the Khotan-tagh, Keriya Range, and Russian Range, probably at low elevations; for we have seen, as stated under the preceding heading, that higher up, near the sources of the Arpalak River, at Chuchu Pass, the black-backed *M. a. alboides* takes its place.

M. a. personata also breeds in the Tian Shan and Russian Turkestan, ranging west through Transcaspia into Persia, north to the Altai and Lake Baikal, south through the Pamir to northern Baluchistan and the Kurram Valley, N. W. Frontier Province.[2]

I agree with Ticehurst[3] that no subdivision of this form is practicable.

Certhia himalayana limes Meinertzhagen. Intermediate Tree Creeper.

Certhia himalayana limes MEINERTZHAGEN, Bull. Brit. Orn. Cl., 42, p. 141, 1922—Gilgit.

KASHMIR: Baltal (alt. 9,500 ft.), May 25, 1925.

Agreeing with the type and other specimens from the N. W. Himalayas in the British Museum. After going over the entire series in that collection, I cannot but recognize *C. h. limes*, as defined by Meinertzhagen. Though not very strongly marked and exactly intermediate between *C. h. himalayana* and *C. h. taeniura*, the series from N. W. India cannot well be united to either of the two. Its range appears to comprise Kashmir, Dardistan, Gilgit, Rawalpindi (south to the Salt Range), N. W. Frontier Province, northern Baluchistan, and probably the adjacent section of Afghanistan.

Certhia familiaris tianschanica Hartert. Tian Shan Tree Creeper.

Certhia familiaris tianschanica HARTERT, Vog. Pal. Fauna, 1, p. 321, 1905 - Aksu, southern Tian Shan.

CHINESE TURKESTAN: Agijas, Tekes basin, Tian Shan, ♀ (juv. plumage), Sept. 5, 1925.

This Tree Creeper is peculiar to the Tian Shan where it is confined to the coniferous mountain forests.

[1]See Pleske, Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 183, 1894.

[2]Whitehead, Ibis, 1909, p. 240.

[3]Bull. Brit. Orn. Cl., 48, p. 118, 1928.

Sitta europaea cashmirensis Brooks. Brooks's Nuthatch.

Sitta cashmirensis BROOKS, Proc. Asiat. Soc. Beng., 1871, p. 209—Kashmir.

KASHMIR: Baltal (alt. 9,500-9,700 ft.), ♂ ad., ♀ ad., May 23, 1925.

Agreeing with specimens in the British Museum from Sonamarg, Gulmarg, and the Safed Koh Range. The male differs from the buff-bellied forms (*pinetorum, persica, rubiginosa*) of the Palaearctic Nuthatch by slenderer bill, much deeper, chestnut-rufous abdomen and crissum, and by lacking the prominent white markings on the under tail coverts, which are barely suggested by dark gray basal spots. Underneath, the female is quite as pale as that of *S. a. pinetorum* (*caesia* auct.),[1] from which it can only be distinguished by the almost uniform buffy under tail coverts, in addition to its decidedly weaker bill. There is no doubt in my mind that *cashmirensis* is conspecific with *europaea*, as has been intimated by Meinertzhagen and Kleinschmidt.

The range of *S. e. cashmirensis* is evidently restricted to the extreme northwestern section of British India. It appears to be fairly common in Kashmir. Sharpe (p. 64) records it from Sonamarg and Baltal; Richmond (p. 471) from the Vale of Kashmir, the Pir Panjal Range, and the Kij Nag Mountains; Meinertzhagen (Ibis, 1927, p. 410) from Gund, Gulmarg, and the Wular Lake. Westwards it extends to the Murree Galis, Chitral, and the Afghan Frontier (Safed Koh[2] and Hariab District),[3] but in the east it does not even cross the Great Himalayan Range into Ladak.[4]

Parus major caschmirensis Hartert. Kashmir Gray Tit.

Parus major caschmirensis HARTERT, Vog. Pal. Fauna, 1, p. 345, 1905—Gilgit.

LADAK: Leh, three ♂ ♂ ad., one ♀ ad., (nesting) June 4, 5, 1925.—Wing of males 73, 75, 77, of female 69 mm.

These specimens agree with a topotypical series from Gilgit in the British Museum. Birds from Baltistan and Kashmir appear to be similar, while those from Chitral and N. W. Frontier Province (Kurram; Safed Koh) are paler and seemingly inseparable from *P. m. intermedius* Sarudny.

[1]For change of name, see Kleinschmidt, Berajah, Sitta Auto-Sitta, p. 11, 1928.

[2]Whitehead, Ibis, 1909, p. 115.

[3]Wardlaw-Ramsay, Ibis, 1880, p. 51.

[4]I do not know on what authority Baker (Fauna Brit. India, 2nd ed., Birds, 1, p. 128, 1922) gives its range as extending from "Afghanistan to Garhwal." There is certainly no reliable record for its occurrence anywhere east of Kashmir proper.

The range of *P. m. caschmirensis* stretches from Gilgit and Kashmir through Ladak to Kangra and even to Lahul, where Whistler (Ibis, 1925, p. 165) found a single pair breeding at Kyelang (10,500 ft.) on June 9, 1921.

Farther east, in the Simla Hills, Garhwal, and Nepal, it is replaced by *P. m. cinereus* Vieillot. It is doubtless by mistake that Baker[1] includes the two first named localities in the range of *caschmirensis*.

Parus cyanus tianschanicus (Menzbier). Tian Shan Blue Tit.

Cyanistes cyanus var. *tian-schanicus* MENZBIER, Bull. Soc. Zool. France, 9, p. 276, 1884- "dans les montagnes qui bordent les déserts de l'Asie centrale au nord-ouest et à l'ouest."

CHINESE TURKESTAN, TIAN SHAN: Autain Bulok, ♂ ad. (very worn), Aug. 15; Shatta, Tekes Valley, two ♂♂ juv (molting), Aug. 25; Ox-su, Tekes Valley, ♂ juv., ♀ juv., Aug. 30; Simtash, Tekes Valley, ♂ ad., ♀ ad., two ♂♂ juv., Sept. 1, 1925.

The birds from the Tekes Valley which, as may be seen from the dates of capture, were taken immediately after the breeding season are unquestionably referable to *P. c. tianschanicus*, although two or three immature ones, by the slight suggestion of a pale yellowish prepectoral band, manifest their close relationship to *P. c. flavipectus*. Two similar examples obtained by Sarudny, on June 5, 1899, at Jarkent, on the southern base of the Boro-khoro Range, northern Tian Shan, I have seen in the collection of the Tring Museum.

The breeding area of *P. c. tianschanicus* appears to be restricted to the central and eastern Tian Shan, and the northern slope of the Kuenlun.[2] Severtzow (1875, p. 172) lists it as a resident for the Issik-kul, upper Naryn, Ak-sai Plateau, and Semiryechensk (Vyernyi; Kopal); Przewalski, as recorded by Pleske,[3] found it in summer abundant in the valleys of the Kunges, Zanma [=Tsang-ma], and Chaidyk-gol; the brothers Grum-Grzimailo[4] in the districts of Turfan and Hami; and Almásy (Journ. Orn., 54, p. 415, 1906) states that it breeds in large numbers in the Tekes Valley, and sparingly on the lower Ili. South of the Tarim basin, along the northern slopes of the Kuenlun, the Blue-Tit was met with in August by Henderson (p. 232) and Scully (p. 154) in the tamarisk jungles of the Arpalak

[1]Fauna Brit. India, 2nd ed., Birds, 1, p. 76, 1922.

[2]Birds from the lowlands of Siberia, at one time referred to it, are now admitted to constitute a separable form (*P. c. yenissensis* BUTURLIN and TUGARINOW).

[3]Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 162, 1894.

[4]Pleske, Bull. Acad. Sci. St. Pétersb., nouv. sér., 3, p. 126, 1892.

and Sanju rivers, while Stoliczka, according to Sharpe (p. 65), found it breeding in May and June at Pasrobat and in the Duba Valley. For the sake of completeness, it may be added that another breeding place was discovered by Fulton (Journ. Bomb. Nat. Hist. Soc., **16**, p. 47, 1904) in the river bed at Shost, alt. 10,000 feet, in Chitral, where five specimens (out of large numbers) were taken in July. During the cold season, the Tian Shan Blue-Tit, like other members of the family, wanders a good deal, and may be seen throughout the winter in suitable places everywhere all over the plains of Turkestan.

P. c. flavipectus evidently is a western representative of the Tian Shan Blue-Tit. It is known to breed in the mountains bordering the Ferghana Valley, viz. Ala-tau, Chatkal-tau,[1] Ferghana Range,[2] and Alai-tagh,[3] and in the Alexander Range.[4] In winter it invades the breeding territory of *P. c. tianschanicus*,[5] but so far as I can see, the two races have not yet been found together any place in the nesting season. Hartert,[6] without stating his authority, claims that *P. c. flavipectus* also breeds at "Kapak in the Tian Shan." If this rather obscure locality refers to Kapkak, near the sources of the Tekes—in the heart of the breeding range of *P. c. tianschanicus*—I am rather inclined to the belief that specimens with yellow-tinged chest, such as we have seen from Jarkent and Shatta, have been mistaken for *P. c. flavipectus*.

Parus ater rufipectus Severtzow. Tian Shan Coal Tit.

"Parus ater var. *rufipectus (asiatica*, Catal.)" SEVERTZOW, Izv. Obshch. Moskov., 8, No. 2, p. 134, 1873—Tian Shan, Turkestan.

CHINESE TURKESTAN, TIAN SHAN: Han Aulik, ♂ ad., Aug. 18; Eidinka, North Musart River, one unsexed (in juvenile molt), Aug. 21; Agijas, Tekes Valley, three ♂♂ ad., one ♂ (in juvenile molt), one ♀ ad., one ♀ (in juvenile molt), Sept. 3, 4, 5; Mointa, Tekes Valley, ♂ ad., Sept. 7, 1925.

This well-characterized race is peculiar to the Tian Shan. Its breeding area, which is chiefly confined to the coniferous forests

[1]Pleske, Mém. Acad. Sci. St. Pétersb., (7th ser.), **36**, No. 3, p. 13, 1888.

[2]Stolzmann, Bull. Soc. Natur. Moscou, nouv. sér., **11**, p. 69, 1897.

[3]Kollibay, Journ. Orn., **64**, p. 603, 1916.

[4]A nearly allied, likewise yellow-chested form, *P. c. carruthersi* HARTERT, breeds in the mountain ranges bordering the Zerafshan Valley, Samarkand. Judging from the original series in the British Museum, it is a fairly well-marked race.

[5]For instance, the Munich Museum has numerous specimens taken between October and March at Narynsk, Tian Shan.

[6]Vög. Pal. Fauna, **3**, p. 2113, 1921.

above 8,000 feet, extends from the Ferghana Range where, according to Stolzmann (1897, p. 69), Barey found it at Tarte-kul throughout the western and central chains to the vicinity of Barkul and Hami on the eastern spurs of the Tian Shan system.[1]

Parus melanolophus Vigors. Crested Black Tit.

Parus melanolophus VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, p. 23, Feb., 1831—Himalayas; = Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p. 471).

KASHMIR: Baltal (alt. 9,500 ft.), ♂ ad., ♀ ad., May 23, 24, 1925.

This Titmouse is widely diffused throughout the western Himalayas from the Afghan frontier east to Kumaon, being a resident in the pine forests from 5,000 feet upward. While common in Gilgit, Kashmir and Baltistan, whence Richmond (p. 472) recorded it from Rondu and Haramosh, it is absent from Ladak. I expect it will ultimately turn out to be a geographic race of the Coal Tit (*Parus ater*), although it differs strikingly from the members of this group by the cinnamon-rufous sides of the breast and deep gray belly. It is no doubt quite distinct specifically from *P. r. rufonuchalis* Blyth, likewise found in the western Himalayas.

Parus atricapillus songarus Severtzow. Turkestan Willow Tit.

Parus songarus SEVERTZOW, Izv. Obshch. Moskov., 8, No. 2, p. 134, 1873—Tian Shan.

CHINESE TURKESTAN, TIAN SHAN: Agijas, ♂ ad., ♀ ad., Sept. 3, 4; Mointa, ♂ ad., Sept. 7; Shatta, Tekes Valley, ♂ ad., juv. (unsexed), Aug. 25, 27, 1925.

This large, richly colored representative of the Willow Tit is likewise peculiar to the Tian Shan,[2] but appears to be less widely distributed than *P. ater rufipectus*, being chiefly restricted to the central section of that mountain system. It is reported as common in the ranges surrounding the Issik-kul, in the upper Naryn Valley, the Kara-tau, the Sary-jass, and has also been met with in the Tekes Valley and its tributaries. Additional to the records enumerated by Laubmann (p. 76), it should be noted that Oustalet (1893, p. 210) lists it from the Tsamgu Valley, south of Masar Pass. In the north, its range extends to the Boro-khoro Range, where specimens were obtained by Przewalski[3] in the vicinity of Sairam Lake, and to

[1] See Pleske, Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 155, 1894.

[2] Hartert (Vög. Pal. Fauna, 1, p. 367, 1905) erroneously included "Lob Nor" (low desert country) in the range of this strictly mountainous species.

[3] See Pleske, Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 157, 1894.

Jarkent, whence Sarudny procured a series of winter birds. No authority appears to exist for its occurrence in the eastern section of the Tian Shan, although a number of nearly related forms are known to inhabit Kukunor, Kansu, and Szechwan.

Cephalopyrus flammiceps flammiceps (Burton). Fire-capped Tit-Warbler.

Aegithalus flammiceps BURTON, P. Z. S. Lond., 3, "1835," p. 153, 1836—"apud montes Himalayenses."[1]

KASHMIR: Baltal (alt. 9,500 ft.), two ♂ ♂ ad., May 24, 1925.

Agreeing with specimens from Gilgit and the Simla Hills. Whistler (Journ. Bomb. Nat. Hist. Soc., 28, p. 992, Dec., 1922) found this species not infrequent, in April and May, in the vicinity of Srinagar. The birds were seen in flocks, feeding in willow trees, and evidently had not yet started to breed.

C. f. flammiceps ranges from Gilgit[2] and the Murree Galis east to the Simla Hills and Mussorie, nesting in the mountains between 5,000 and 10,000 feet, and descending to the northern plains in winter. It is, however, absent from Ladak. In Sikkim and Bhutan, it is replaced by *C. f. saturatus* Whistler,[3] distinguishable by darker green upper parts and lesser amount of orange-red on forecrown and under parts.

Panurus biarmicus russicus (Brehm). Eastern Bearded Tit.

Mystacinus russicus BREHM, Handb. Naturg. Deutschl., p. 472, 1831—"lebt in Russland, kommt im Herbst and Winter nach Ungarn und in die Nähe von Wien."

CHINESE TURKESTAN: Oku Mazar (between Tumshok and Maralbashi), ♂ ad., Sept. 25; Maralbashi, two ♂ ♂ ad., two ♀ ♀ (juvenile plumage), Sept. 27, July 27, 1925.

Topotypical material is not available, but a series from Hungary agrees with the Turkestan birds in paleness of upper parts,[4] as opposed to the deeply colored *P. b. biarmicus*, of which Field Museum has specimens from England and the Rhone delta (Camargue).

Two birds taken at Maralbashi on July 27 wear the well known juvenile plumage, with the large first primary, extensively black lateral rectrices, black middle back, etc.

[1]Mussorie suggested as type locality by Whistler (Bull. Brit. Orn. Cl., 45, p. 15, 1924.)

[2]Its regular occurrence in Afghanistan is open to doubt.

[3]Bull. Brit. Orn. Cl., 45, p. 15, 1924.

[4]See also Hartert, Vög. Pal. Fauna, 3, pp. 2128-29, 1921.

The eastern race of the Bearded Tit is widely distributed in Palaearctic Asia, and stretches westward into Poland and Hungary. In the Tarim basin it is reported to be exceedingly common among the reeds and rushes, growing in marshy ground and along the borders of lakes. It appears to be a permanent resident there, Abbott (see Richmond, p. 581) having procured a series near Maralbashi around Christmas time. The Second Yarkand Mission, as reported by Sharpe (p. 68), also met with it at various localities in the Yarkand plains in the months of November and January, while Oustalet (1893, p. 214) lists a couple of adults obtained by Prince Orléans's party at Aktarma, lower Tarim, on October 16, 1889.

Lanius cristatus isabellinus Hemprich and Ehrenberg. Pale Brown Shrike.

Lanius isabellinus HEMPRICH and EHRENBERG, Symb. Phys., Aves, 1, fol. E, footnote, 1839--Gumfuda, Arabia.

CHINESE TURKESTAN: Yakshamba Mazar, ♀ ad., July 17; Lailik-otang, Yarkand River, ♂ imm., July 18; Aka-dong, Yarkand River, ♂ imm., July 19; Alager, Yarkand River, ♂ juv. (pullus), July 21; Aksak-maral, ♀ ad., ♀ (in juvenile molt), July 22; Shamal, Yarkand River, three ♀ ♀ juv., July 22, 23; Maralbashi, ♂ imm., one (unsexed) juv., July 27; Yaka-kuduk (near Maralbashi), ♀ ad., Sept. 23; Conishar (six miles northeast of Aksu), two ♀ ♀ ad., three ♀ ♀ imm., Aug. 7, 9, 1925.

On careful comparison with the large series of shrikes in the Tring Museum, all of these specimens were found to belong to *L. c. isabellinus*, as understood by Hartert (Vög. Pal. Fauna, **1**, p. 444). The coloration of the upper parts is somewhat variable, and occasionally shows a decided rufescent tone. Even these aberrant examples, however, have the pileum much less rufous than *L. c. phoenicuroides*, as represented by a good series from Russian Turkestan and Persia.

L. c. isabellinus is the only shrike of this group breeding in Chinese Turkestan. It is a common species in the Tarim basin and in the hills of Yarkand. According to Scully (p. 137, *L. arenarius*), who gives a full account of its nesting habits in Yarkand, it ascends to high elevation in the Kuenlun, specimens having been observed by him north of Chuchu Pass at an altitude of about 10,000 feet. There can be little doubt that Henderson and Hume (p.182), in spite of the latter's emphatic protest,[1] were mistaken in referring the Yarkand shrikes to *L. cristatus*. The Second Yarkand Mission, as

[1]Stray Feathers, 4, p. 139, note.

recorded by Sharpe (p. 70), and Dr. W. L. Abbott (see Richmond, p. 581) also met with *L. c. isabellinus* at various localities in Yarkand and Kashgaria. The exact limits of its breeding area are, however, still imperfectly known. In the western spurs of the Tian Shan, on the Chir-chik River at Pskem, one meets already with *L. c. phoenicuroides*, as we are told by Kollibay (1917, p. 444).

Phylloscopus tristis sindianus Brooks. Sind Warbler.

Phylloscopus sindianus BROOKS, Stray Feathers, 8, p. 476, March, 1880—Sukkur, northern Sind (type in British Museum examined).

LADAK: Shimsa Kharbu, Dras Valley (alt. 9,800 ft.), ♂ ad., May 26; Lamayuru (alt. 11,500 ft.), ♂ ad., May 30; Panamik, Nubra, three ♂♂ ad., June 11, 1925.

Additional specimens.—British Museum: Sukkur, Sind, ♀ ad. (type), ♂ ad., January 24, 1880. W. E. Brooks; Lamayuru, Ladak, ♀ ad., July 31, 1923. B. B. Osmaston; Leh, two ♂♂ ad June 30, Sept. 7, 1873. J. Biddulph; Leh, adult (unsexed), Aug. 28, 1875. F. Stoliczka, No. 569.—U. S. National Museum: Zogi-bul Pass (alt. 11,000 ft.), Kashmir, ♂ ad., ♀ ad, June 20, 1893; Pashgam (alt. 9,000 ft.), Dras Valley, ♂ ad., June 25, 1893; Shergol (alt. 10,000 ft.), Ladak, ♂ ad., June 23, 1893; Indus Valley, Ladak (alt. 11,000 ft.), ♀ ad., June 30, 1893; Nimu (alt. 10,000 ft.), Indus Valley, Ladak, ♂ ad., 1897. All collected by W. L. Abbott.

Until recently, information about the distribution of this Warbler was very scanty, the Russian (Keriya) Range on the southern border of the Tarim basin, as recorded by Pleske,[1] being the only locality where it had been found during the breeding season. Although a species of *Phylloscopus* has long been known to breed in the high mountains of Ladak and in the Karakoram, it had generally been referred to *Ph. tristis*,[2] until Baker[3] recognized it as belonging to *P. t. sindianus*, an identification later corroborated by Meinertzhagen (Ibis, 1927, p. 418) and Ticehurst (Journ. Bomb. Nat. Hist. Soc., **32**, p. 356, 1927). My own studies having led to the same conclusion, it may be considered as established that the Sind Warbler is a widely diffused breeding species throughout the western Himalayas and in the adjacent section of Chinese Turkestan.

[1]Ornith. Ross., 2, Part 2, p. 284, 1889.

[2]Henderson and Hume, p. 219—Ladak and Karakash Valley; Scully, p. 148—Karakash and Sanju valleys; Sharpe, p. 77—Sonamarg, Baltal, and various Ladak localities; Richmond, p. 475—Zogi-bul Pass and Pashgam; Oberholser, p. 223— Shergol and Nimu, Indus Valley; Ludlow, Journ. Bomb. Nat. Hist. Soc., 27, p. 142, 1920—Leh; Wathen, o. c., 29, p. 698, 1923—from below Matayan to Leh; Osmaston, Ibis, 1925, p. 678—Indus Valley (from Leh to Upshi), Pangong Lake (Shushal and Tankse), Ladak, and Puga, Rupshu.

[3]Fauna Brit. India, 2nd ed., Birds, 2, p. 457, 1924.

Birds from Ladak agree with two, including the type, from Sukkur in wing-formula and length of first (spurious) primary, as correctly pointed out by Ticehurst (Ibis, 1922, p. 563). The second primary is equal to the ninth or tenth or is between these two, very rarely between the eighth and ninth, while in *P. t. tristis* (sens. lat.) it generally equals the eighth or falls between the seventh and eighth. The length of the first primary is somewhat variable, and while in the majority of the specimens of *sindianus* it exceeds the tip of the primary coverts by about 8-10 mm. (against 5½-7, rarely 8, in *P. t. tristis*), one of our skins, ♂ ad. from Shimsa Kharbu, certainly does not differ therein from a breeding female of *tristis* taken by H. Seebohm on June 19, 1877 on the banks of the Yenisei, the distance between the tip of the primary coverts and the tip of the first primary measuring in both about 5½ mm.

An adult bird collected by N. Przewalski in May in the Russian (Keriya) Range and preserved in the Tring Museum is in every respect similar to the Ladak specimens, thus confirming Pleske's identification. A single adult male from Gilgit, March, 1880 J. Scully, in the same collection, is likewise an unquestionable *sindianus*, if the proportions of the two outer primaries are of any value.

Males from Kashmir and Ladak measure as follows: wing 56-61; tail 46-50.—One male from Gilgit: wing 60.—One male from Russian (Keriya) Range: 56 mm.

The breeding area of *P. t. sindianus* apparently extends from Gilgit and eastern Kashmir (Sonamarg, Baltal) throughout the Himalayas to Ladak and Rupshu,[1] stretching north to the Kuenlun (Karakash and Sanju rivers) and east to the Russian Range, in Chinese Turkestan. It may breed even in the mountains west of Yarkand, since Sharpe (p. 77) lists a specimen of "*P. tristis*" taken by F. Stoliczka at Pasrobat, on May 13, 1874.[2] In the breeding season it is exclusively found upwards of 8,000 feet altitude. It winters in Sind and Mesopotamia.[3] It is safer for the present to treat *P. tristis* as a distinct species, since we are told by Sushkin[4] that

[1]Whistler's record (Ibis, 1925, p. 168) of *P. collybita tristis* breeding in Lahul from Gondla to beyond Kyelang probably belongs also here.

[2]Unless it belongs to *P. collybita subsindianus* SARUDNY (Mess. Orn., 4, No. 4, p. 269, Jan., 1914—Darwas Range), of which nothing is known beyond the description.

[3]There is no definite record for its occurrence in Russian Turkestan. The two specimens from Kopal and the Kirghiz steppe mentioned by Pleske (Ornith. Ross., 2, Part 2, pp. 288, 290), both taken in migration time, cannot well be referable to *P. t. sindianus*, and are more likely to be aberrant *P. t. tristis*.

[4]List and Distribution Birds Russ. Altai etc., p. 72, 1925.

P. tristis and *P. collybita* live and breed together in northeastern Russia and Ural. There can, however, be no question that *P. sindianus* is merely a slightly differentiated race of *P. tristis*.

Phylloscopus nitidus viridanus Blyth. Greenish Willow Warbler.

Phylloscopus viridanus BLYTH, Journ. Asiat. Soc. Beng., **12**, (2), p. 967, 1843—"very numerous in the vicinity of Calcutta during the hiemal months, and likewise common in Nepal."

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♀ ad., Aug. 28, 1925.

This Warbler is widely diffused in eastern Europe and western Palaearctic Asia. Within the boundaries covered by this paper, it has been found breeding by various collectors in the valleys of the Tian Shan. It seems to be absent, except on migration, from the Tarim basin, but reappears in the mountains along its southern border, where Henderson (p. 220) met with it in August on the Arpalak River, while Scully (p. 148) noticed it in the same month among the tamarisk and willow bushes fringing the Sanju stream and along the banks of the Karakash River. In Kashmir and Ladak, too, it apparently breeds in some numbers. The Second Yarkand Mission (Sharpe, p. 80) collected specimens in August at Sonamarg, Baltal, and Kargil; Richmond (p. 478) records two adult males taken by W. L. Abbott late in July, 1891 in central Kashmir at an elevation of 11,000 feet; Mrs. Wathen (Journ. Bomb. Nat. Hist. Soc., **29**, p. 698, 1923) found quite a number of these birds, on August 14 and 15, in a willow grove on the river near Dras at about 10,000 feet, and Bates (op. cit., p. 799, 1923) says that it breeds abundantly in the Vale of Kashmir from the Valley level to 10,000 feet or more. Meinertzhagen (Ibis, 1927, p. 419) also encountered the species in late summer at Skardu, Baltistan, and on the Srinagar-Gilgit road.

Phylloscopus occipitalis occipitalis (Blyth). Large Crowned Willow Warbler.

Phylloptneuste occipitalis (Jerdon MS.) BLYTH, Journ. Asiat. Soc. Bengal, **14**, (2), p. 593, 1845—"southern India, where discovered by Mr. Jerdon."

KASHMIR: Baltal (alt. 9,500 feet), two ♂♂ ad., May 23, 24, 1925.

The Large Crowned Willow Warbler breeds in abundance throughout the western Himalayas from the Afghan frontier (Safed Koh) to Spiti and Garhwal. It has also been found breeding at Artush, in the Chatkal-tau,[1] and in the Hissar Range, Zerafshan,[2] in Russian Turkestan.

[1]Pleske, Mém. Acad. Sci. St. Pétersb., **36**, No. 3, p. 29, 1888.
[2]Carruthers, Ibis, 1910, p. 457.

Phylloscopus inornatus[1] **humei** (Brooks). Hume's Willow Warbler.

Reguloides humei BROOKS, Stray Feathers, 7, p. 131, 1878 -Northwest India.

KASHMIR: Baltal (alt. 9,400 ft.), ♂ ad., Mar. 23, 1925

CHINESE TURKESTAN, TIAN SHAN: Han Aulik, North Musart River, adult (unsexed), Aug 19; Eidinka, North Musart River, ♂ ad, Aug. 21; Shatta, Tekes Valley, ♂ ad., Aug. 26; Agijas, Tekes Valley, ♀ imm., Sept. 3, 1925.

The Baltal bird agrees with others in corresponding plumage from Gilgit (May, 1878, J. Biddulph) and Sonamarg (June, 1896, J. Davidson) in the British Museum. Birds from the Tian Shan (Issik-kul; Tishkan; Jarkent) in the Tring collection are slightly duller, not quite so greenish above, have larger bills, and the first primary usually shorter. It remains to be seen whether the divergencies are really constant, as every one of these characters is subject to much variation in both *P. i. inornatus* and *P. i. humei*. The Baltal bird is remarkably like spring specimens from the upper Hwang Ho identified by Pleske[2] as *R. mandellii* Brooks, but has a decidedly shorter tail.

The Turkestan birds are identical with others in fresh fall plumage from Aksu (August 27) and Jarkent (September 5) in the Tring Museum.

P. i. humei breeds throughout the Tian Shan west to the Chatkal-tau, in the Altai, and in the northwestern Himalayas, from the Afghan frontier (Safed Koh) to Kashmir, its summer home being between 7,000 and 12,000 feet. In the latter country, Abbott obtained it, according to Richmond (p. 476), in the Vale of Kashmir, north of Pir Panjal Range, and at Sonamarg in August and June respectively, while Sharpe (p. 79) records specimens obtained by the Second Yarkand Mission in August at Gaganghir, Sonamarg, and Baltal. A full account of its breeding habits in Kashmir, where he found it abundant, is given by Brooks in Hume's "Nests and Eggs

[1]There can be no question that *Regulus inornatus* BLYTH (Journ. Asiat. Soc. Beng., 11, (1), p. 191, 1842; idem, o. c., 12, (2), p. 964, 1843) is an earlier name for *Reguloides humei praemium* MATHEWS and IREDALE, 1915. See Ticehurst, Ibis, 1922, pp. 147-148, and Stresemann, Ornith. Monatsber., 32, pp. 17-18, 1924.

[2]Wiss. Res. Reisen Przewalski, 2, Birds, Part 2, p. 102, 1890.—At present it is impossible to verify Pleske's identification, owing to lack of adequate material. All of the Sikkim specimens, including Brooks's type, in the British Museum are in fresh fall plumage, while from the Hwang Ho but a few skins taken in spring are available. The single breeding bird from southern Tibet mentioned by Kinnear (Ibis, 1922, p. 513) is too much worn to be of any use for comparative purposes.

of Indian Birds" (**1**, pp. 262-267, 1889). It appears to be very rare and local in Ladak. Sharpe (o. c., p. 79) lists a single specimen taken on August 24, 1873, at Nurle in the Indus Valley, while Oberholser (p. 223) speaks of a fall bird, probably a migrant, secured by Abbott at Leh.

In the mountains along the southern border of the Tarim basin, it seems to breed in some numbers. Scully (p. 149) reports that a Warbler, identified by him as *Reguloides viridipennis*, but actually the present species as shown by Sharpe (p. 79), was common at 9,000 feet elevation in the small bushes at Tadlik, in the upper Sanju Valley, around the middle of August. Members of the Second Yarkand Mission also met with it in May and June in Sarikol, while Richmond (p. 582) lists a female taken by W. L. Abbott on July 29, 1893 near Sughet Karaul. It also breeds in the Hissar Range, Zerafshan, as recorded by Carruthers (Ibis 1910, p. 456).

Locustella naevia straminea Seebohm. Eastern Grasshopper Warbler.

Locustella straminea (ex Severtzow MS.) SEEBOHM, Cat. B. Brit. Mus., **5**, p. 117, 1881—Etawah,[1] N. W. India (first description).

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♂ ad., ♀ imm., Aug. 25, 26, 1925.

The eastern form of the Grasshopper Warbler breeds from the extreme east of European Russia (Ufa, Orenburg) through the Kirghiz steppe and Transcaspia to Turkestan, and winters in the plains of western India. In the Tian Shan, it appears to be widely diffused. Severtzow (Journ. Orn., **23**, p. 175, 1875) indicates the species as breeding throughout the western and central parts of that mountain system, from the Chir-chik to the Issik-kul, while Merzbacher's party, according to Laubmann (p. 83), secured specimens in May and June at Narynsk.

Sushkin[2] has lately presented a short review of the geographic races of the Grasshopper Warbler.

Acrocephalus arundinaceus zarudnyi Hartert. Sarudny's Great Reed Warbler.

Acrocephalus arundinaceus zarudnyi HARTERT, Bull. Brit. Orn. Cl., **21**, p. 26, Nov., 1907—Jarkent, Turkestan.

[1]I am afraid that Etawah—the only specified place mentioned by Seebohm—will have to be accepted as type locality.

[2]Proc. Boston. Soc. N. H., **38**, pp. 47-48, 1925.

CHINESE TURKESTAN: Maralbashi, two ♀ ♀ ad., July 25, 27; Conishar, six miles northeast of Aksu, ♂ imm., Aug. 7, 1925.

These specimens have been compared and, except for brighter coloration due to their fresher plumage, found identical with the type in the Tring Museum. The second primary is but slightly shorter than the third and decidedly longer than the fourth. They are very different from *A. stentoreus*, but very close to *A. a. arundinaceus*, from which they can hardly be distinguished by slightly more olivaceous, less rufescent upper parts.

The Great Reed Warbler, according to Scully (p. 146), breeds in the plains of Yarkand, where it is a seasonal visitant, arriving in March and leaving at the approach of the cold weather. Przewalski, as recorded by Pleske,[1] likewise found it abundant among the reeds of the Tarim Valley. It also breeds, though not very commonly, along the rivers in the Tian Shan. Its general range extends through Russian Turkestan and Transcaspia west to the Caspian Sea.

Hippolais caligata (Lichtenstein). Booted Tree Warbler.

Sylvia caligata LICHTENSTEIN[2] in Eversmann, Reise von Orenburg nach Buchara, p. 128, 1823—"am Ilek am 2. Mai erlegt."

CHINESE TURKESTAN: Maralbashi, Kashgar River, ♀ ad., July 27, 1925.—Wing 61 mm.

This bird appears to be referable to *H. caligata*. The second primary falls between the sixth and seventh, and the tail is conspicuously rounded, the external rectrix being about 5 mm. shorter than the longest (central) one. The first primary is very slightly longer than usual, exceeding the tip of the primary coverts by 8 mm. The upper parts are decidedly more brownish, and the flanks more strongly washed with buffy than in *H. rama*.

As far as I am aware, this is the first record of the species from the Tarim basin, although Severtzow (1875, p. 176) had found it in the western part of the Tian Shan. It will be remembered that both Scully (p. 147) and the naturalists of the Second Yarkand Mission (Sharpe, p. 74) obtained the allied *H. rama* at Yarkand, Karghalik, and other localities in the Tarim basin.

Sylvia nisoria merzbacheri Schalow. Merzbacher's Barred Warbler.

Sylvia nisoria merzbacheri SCHALOW, Ornith. Monatsber., 15, p. 3, 1907—Kashkasu, Tian Shan (type in Munich Museum examined).

[1]Wiss. Res. Reisen Przewalski, 2, Birds, Part 2, p. 125, 1890.

[2]See Stresemann, Ornith. Monatsber., 36, pp. 51-52, 1928.

CHINESE TURKESTAN: Echitgo (Carshamba Bazar), Yarkand River, ♂ ad. (breeding), ♀ juv., July 17; Maralbashi, Kashgar River, ♂ ad., ♂¹ juv., ♀ juv., July 25, 27, 29, 1925.

The adults, when compared with others from Hungary, Roumania, and Germany (near Leipzig), are paler above, notably on the pileum, and have more extensive white markings on the lateral rectrices as well as larger bills. A single male from Urfa, Mesopotamia, agrees in pale coloration, but the bill is small and the white in the tail is restricted as in European examples. There is, no doubt, a tendency to greater size in Asiatic birds, though the divergency is not quite constant.

While not strongly marked, *S. n. merzbacheri* appears to be separable[1] subspecifically from the Barred Warbler, although its exact distribution has yet to be worked out.

In the Tarim basin, it is a summer visitor, arriving in May and departing again in September on its southward migration. Scully (p. 149) found it breeding in rose and thorn bushes around Yarkand, and the Second Yarkand Mission, as recorded by Sharpe (p. 74), also obtained specimens, nests, and eggs at Kisil, Karghalik, and Yarkand. Przewalski, according to Pleske,[2] noted the Barred Warbler in small numbers in the oasis of Niya towards the end of May.

Merzbacher and Almásy met with it in the Naryn Valley and in the vicinity of the Issik-kul, and Severtzow (1875, p. 76) mentions it as nesting in the cultivated valleys throughout the whole Tian Shan system. Its winter quarters are unknown.

Sylvia communis rubicola Stresemann. Turkestan Whitethroat.

Sylvia communis rubicola STRESEMANN, Journ. Orn., 76, p. 378, 1928—Kuldja, Chinese Turkestan.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, three ♂♂ (first winter), one ♂ juv., Aug. 23, 24, 28; Ox-su River, Tekes Valley, ♂ (first winter), Aug. 30; Agijas, Tekes Valley, ♀ (first winter), Sept. 2, 1925.

Dimensions of these specimens are markedly larger than in a series from Urfa, northern Mesopotamia, which I take to represent *S. c. icterops* Ménétr. The wings measure 74, 75, 76, 76 in the males, and 75, 78[3] in the females, against 68 to 72 in the Urfa birds. Six additional skins from the Tian Shan in the Munich Museum have wings of 75 to 79 mm., thus corroborating the difference.

[1]See also Snigirewski, Journ. Orn., 76, p. 597, 1928.

[2]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 76, 1889.

[3]Perhaps wrongly sexed.

S. c. rubicola breeds throughout the whole Tian Shan, from the Ala-tau, Chatkal-tau, and the Ferghana Range in the west to the Barkul Range in the extreme eastern section.[1] Birds from the Altai probably belong to the same form. It does not breed in the Tarim basin, though Przewalski[1] found it on migration, very early in May, near the foot of the Russian Range.

Sylvia curruca minula Hume. Small Whitethroat.

Sylvia minula HUME, Stray Feathers, **1**, p. 198, 1873—"Bhawulpore, Yarkand, Jhansie,[2] and Sindh," no type locality specified.

CHINESE TURKESTAN: Aksak-maral, Kashgar River (near Maralbashi), ♂ ad. (worn breeding), July 21; Maralbashi, ♂ juv., July 21; Yaka-kuduk, northeast of Maralbashi, ♂ ad., Sept. 23; Kashgar, ♀ ad., Oct. 6, 1925.

The specimens are identical with others in the Tring Museum from the same general region (Tarim River and Russian Range, coll. Przewalski; River Moldja, coll. M. W. Pewtzow). The wing formula is somewhat variable, the second primary being either between the sixth and seventh, or equal to the seventh, or between the seventh and eighth. In dimensions (wing of males 60-64, of females 60-62) and coloration they are, however, quite constant, being altogether much paler above, lighter gray on the crown and more sandy brown on the back, than *S. c. affinis*.

S. c. minula obviously is the only form of Lesser Whitethroat breeding in the Tarim basin and the surrounding hills.[3] The Second Yarkand Mission (Sharpe, p. 76) met with it in May and June at Ighiz Yar, Karghalik, and Kugiar, and Stoliczka found it common at Beshterek, where nests with eggs were taken on May 31st. Henderson and Hume (p. 221) no doubt had this form in mind when recording "*S. curruca*" as abundant in Yarkand, and the same remark applies to Scully (p. 150), who mentions "*S. curruca*" as being common in the plains of Kashgaria, arriving about April and migrating southward toward the end of October. Przewalski, as reported by Pleske,[4] lists this Warbler as breeding in the Tarim Valley, and noticed it during migration time, both in spring and autumn, at numerous localities along the northern base of the Kuenlun between

[1]See Pleske, Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 78, 1889.

[2]In a later communication (Stray Feathers, 7, pp. 60, 62, 1878), Hume points out that the Jhansie specimen belongs to *S. althaea*.

[3]Sharpe (p. 76) refers a specimen obtained by Henderson (about the middle of August) at Koshtagh to *S. c. affinis*. Mr. Kinnear, while confirming the identification, writes that the date is Sept. 10, 1870, which suggests that the bird was a migrant from the north.

[4]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 80, 1889; Part 2, p. 81, 1890.

the Khotan and Cherchen Darya as well as in the Nan Shan.[1] The example from the south foot of the Tian Shan (between Kucha and Karashar) mentioned by Laubmann (p. 88) as *S. c. affinis* proves, on reexamination, to be referable to *S. c. minula*. In the Tring Museum, I have seen specimens obtained by Przewalski in the Russian Range (May) and on the Tarim River (April), and others taken by M. Pewtzow in June on the Rio Moldja (Moldsha), at the northern base of the Astun-tagh.

According to Severtzow (Ibis, 1883, p. 67) and Pleske,[2] *S. c. minula* also breeds in large numbers in the Ferghana Valley and along the Sir Darya.[3] A series in the Tring Museum from this region, comprising specimens secured by Baron Loudon in Bokhara (Farab, Amu Darya) and by T. Barey in Ferghana (Isfairam, Alai) early in April, appear to be indeed indistinguishable from those of the Tarim basin.

S. c. minula winters in western India, Makran, and parts of Persia.

Sylvia curruca affinis (Blyth). Indian Lesser Whitethroat.

Curruca affinis BLYTH, Journ. Asiat. Soc. Beng., 14, (2), p. 564, note, 1845—Southern India.[4]

CHINESE TURKESTAN: Kashgar, ♂ ad., Oct. 6, 1925.—Wing 70 mm.

This bird, in fresh fall plumage, is larger with stronger bill and much darker, browner above than the specimens referred to *S. c. minula*, and agrees with a series from Jarkent (August and September) in the Tring Museum and others from Narynsk, Tian Shan (August) in the Munich Collection. It is doubtless a migrant from the north.

S. c. affinis breeds in Siberia and possibly in parts of Turkestan, although its distribution during the nesting season in the latter country is far from being well understood. The Tring Museum has six specimens collected by N. Sarudny, on May 9 and 10 on the River Tishkan, and a large series from near Jarkent, taken in April,

[1]Ticehurst (Journ. Bomb. Nat. Hist. Soc., 31, p. 699, 1926) refers birds "from Zaidam, Alashan, and others obtained by Prevalsky (SIC) in Turkestan" to *S. c. halimodendri* SUSHKIN, but this can hardly be correct.

[2]Ornith. Ross., 2, pp. 104-105.

[3]Birds from the lower Sir Darya have lately been separated as *S. c. jaxartica* SNIGIREWSKI (Journ. Orn., 77, p. 258, 1929).

[4]Jerdon who sent the types to the Calcutta Museum states (Birds India, 2, p. 209, 1863) that "he found it in the Carnatic, at Jaulnah, and other parts of the Deccan, and also at Mhow, but not further east." Brooks (Stray Feathers, 2, p. 332, 1874; o. c., 3, p. 272, 1875) examined the types and found them to belong to the eastern race with short second primary.

August, and September. The majority are clearly referable to *affinis*, the darkest examples being fully as intensely colored as winter birds from India (Cawnpore). Others, particularly an adult male from Jarkent (April 9, 1900), however, closely approach *S. c. minula* in paleness of upper parts. The Simpson-Roosevelt Expedition obtained a similar specimen - adult male—on the same day and at the same locality (Kashgar) as the one listed above. For the present it must remain doubtful whether they represent merely individual variants of *affinis*, or intergrades to *minula*, or a recognizable race of unknown breeding range, combining the size of the former with the coloration of the latter.[1] It will be remembered that Stolzmann (p. 72) tentatively proposed the name *S. margelanica* for two migratory individuals of similar characters secured by T. Barcy at Margelan, Ferghana.

Pleske (1888, p. 30) records *S. c.* var. *affinis* from the Chatkal-tau (April and August), while Laubmann (p. 88) refers birds obtained by G. Merzbacher in the latter half of August near Narynsk, Tian Shan, to the same race. Reexamination of these skins in the Munich Museum serves to substantiate his identification.

In the Tarim basin, *S. c. affinis* apparently occurs only on passage, when on the way to its winter quarters in India. Oustalet (1893, p. 175) lists a single example obtained by Bonvalot and Prince Orléans, on October 13, 1889 near the Kansi Darya, in the Lob Nor region, and Henderson obtained two specimens at Oi Tograk and Koshtagh in September, 1890, as I am informed by Mr. Kinnear, of the British Museum.

Sylvia althaea althaea Hume. Hume's Lesser Whitethroat.

Sylvia althaea HUME, Stray Feathers, 7, pp. 60, 62, 1878 Jhansi, Deesa, "Ahmednuggur" [Ahmadnagar], "Bhawulpur" [Bahawalpur], and Ramoo, "Cashmeer"; no type locality specified.[2]

LADAK: Panamik, Nubra, three ♂♂ ad., one ♀ ad. (breeding), June 11, 12, 13, 1925.

Thanks to the courtesy of Dr. Richmond, eight additional specimens from Dr. W. L. Abbott's collection are before me as follows: Vale of Kashmir, ♂ ad., June 1; ♀ ad. (with nest and eggs), May 18;

[1]Stolzmann (Bull. Soc. Natur. Moscou, nouv. sér., 6, pp. 398-399, 1892) discusses the variation in twelve specimens from Transcaspia of what he calls *S. garrula affinis*. However, one of the skins (from Tedjen, Feb. 26, 1890), now in the Tring Museum, appears to be *S. c. minula*.

[2]When describing *S. althaea*, Hume had five specimens before him. The four first-named localities being in the winter range of the species, we propose to accept Ramoo, Kashmir, as type locality.

Lolab Valley, Kashmir, three ♂♂ ad., April 20, May 12, and July 10; Nowboog Valley, eastern Kashmir, ♂ ad., June 2; Shyok River, two ♀♀ (juvenile plumage), July 15. Besides, I have seen a series of breeding birds from Ladak and Baltistan (Skardu) in Col. Meinertzhagen's collection, and other Ladak specimens obtained by Osmaston in the British Museum. All of them are unquestionably *S. althaea*. The various breeding records of *S. curruca affinis*[1] from Kashmir and Ladak are doubtless due to confusion with *S. althaea*, which is evidently the only form of Lesser Whitethroat nesting in northwestern India. In the east, it does not seem to extend much beyond the Shyok Valley, Ladak, there being no record from either Spiti, Kulu, or Lahul. Judging from specimens in the British Museum secured by Scully and Biddulph in May, July, and August, it is the present species, and not *S. c. affinis*, that breeds in Gilgit,[2] and I expect the same will prove to be the case in the Kurram Valley in spite of Whitehead's contrary assertion.[3] *S. althaea* also breeds in the juniper forests of northeastern Baluchistan,[4] in Afghanistan,[5] and has been met with during the nesting season in parts of Russian Turkestan. Pleske (1888, p. 30) lists specimens from the Chatkal-tau (Saamin, May 30; Kshtut, July 3; Iskander-kul, July 18) and mentions[6] others taken at the end of May and in June in eastern Bokhara (Baldjuan, Karnak, Ishtium, Karategin), while Stolzmann (1897, p. 71) states that *S. althaea* was secured by T. Barey in June at Zordali and Kara-karyk in the Alai Range, Ferghana.[7]

S. althaea bears such a striking resemblance to the *S. curruca*

[1]See Sharpe (p. 75; Jhelum Valley, Kangan, Gaganghir, Kargil, Shargol); Ward (Journ. Bomb. Nat. Hist. Soc., 17, p. 112, 1906—Kashmir and Baltistan); Whistler (o. c., 28, p. 994, 1922—round Srinagar); Bates (o. c., 29, p. 798, 1923—Wular Lake and Liddar Valley, Kashmir); Osmaston (o. c., 31, p. 990, 1927—Kashmir and Ladak).—Since this was written, Mr. Kinnear tells me that the birds from Kangan and Gaganghir mentioned by Sharpe are indeed *S. a. althaea*.

[2]See Scully, Ibis, 1881, p. 450.—Biddulph (Ibis, 1881, p. 67) appears to have confused his notes when asserting that *S. c. affinis* was the breeding form and *S. althaea* a mere transient in Gilgit. In a later communication (Ibis, 1882, p. 279), he claims to have received *S. c. affinis* from Darel, which requires confirmation, as the specimens are not in the British Museum.

[3]Ibis, 1909, p. 122.—No breeding birds in the British Museum (Kinnear, in litt.).

[4]Ticehurst, Journ. Bomb. Nat. Hist. Soc., 31, p. 698, 1926.

[5]*S. affinis* W. RAMSAY, Ibis, 1880, p. 59.—Mr. Kinnear (in litt.) tells me that two specimens from Byan Kheyl, May 26 and 27, 1879 (the latter shot off the nest), are clearly *S. a. althaea*.

[6]Ornith. Ross., 2, p. 101.

[7]Laubmann's record (p. 87) from the south foot of the Tian Shan (between Kucha and Karashar) can hardly belong here. Unfortunately, I omitted to reexamine the specimen when in Europe last year.

group that one is tempted to regard it as subspecifically related. However, our knowledge of the ranges of *S. althaea* and *S. c. affinis* in Russian Turkestan and Baluchistan, where both are said to breed, is far too incomplete to admit of final conclusions. Moreover, a western race, *S. althaea caucasica*, has been described from Transcaucasia and northern Persia, where a form of *S. curruca* is known to breed, too.

Rhopophilus pekinensis albosuperciliaris (Hume). White-browed Bush Dweller.

Suya albosuperciliaris HUME in Henderson and Hume, Lahore to Yarkand, p. 218, pl. 18, 1873—Koshtak, Kilian River, Yarkand Plains.

CHINESE TURKESTAN: Alager, Kashgar River (near Maralbashi), ♀ ad., July 21; Yaka-kuduk, ♂ ad., Sept. 23, 1925.

The July bird is in badly worn breeding plumage, while the male taken in September, which I have compared and found identical with the type in the British Museum, is just finishing its annual molt. Thanks to the courtesy of Dr. C. W. Richmond, I have been enabled to examine two more specimens, adult male and female, secured by Dr. W. L. Abbott at Pichak Sindi, east of Maralbashi, in December, 1893.

R. p. albosuperciliaris is peculiar to the Tarim basin, ranging east to the Bagrash-kul and Lob Nor. George Henderson, its discoverer, shot a single specimen on September 10, 1870 at Koshtak, on the Kilian River, southeast of Yarkand. Scully (p. 147) found it tolerably common in the plains, where it is stated to be a permanent resident, and collected adult and young birds near Yarkand on June 16 and 17, 1875. Majev, as recorded by Menzbier (p. 354, *R. deserti*), obtained specimens in the middle of October in the bushes along the Taushkan Darya, at Uchturfan and Jaman-su, near the southern foot of the Kokshal-tau. Przewalski, as we are told by Pleske,[1] met with it in the valley of the Chaidyk-gol, on the south side of the Tian Shan, and all along the Tarim River south to the Lob Nor. The Second Yarkand Mission, according to Sharpe (p. 81), encountered it at Sanju and Oi Tograk, along the northern base of the Kuenlun, and also at Maralbashi and Aioksogon amongst high grass. Oustalet (1893, p. 201) records a female secured by Prince Orléans's party at Akdagash, on the banks of the lower Tarim halfway between Kurla and Chaklik, on October 10, 1889,[2]

[1]Wiss. Res. Reisen Przewalski, 2, Birds, Part 2, p. 131, 1890.

[2]The couple from "Batasoumbo" [=Pata-sumdo], southeastern Tibet, can hardly belong to the same form, and should be reexamined.

while Richmond, in his report on W. L. Abbott's collection (p. 582), lists a couple from Pichak Sindi, December, 1893, and an adult male from the junction of the Aksu and Kashgar rivers, November 29, 1893.

When compared with typical *R. p. pekinensis*, from Peking and Mongolia, the present form looks almost too different to be treated as a race of it. In addition to its somewhat greater dimensions, it has a much heavier bill, much more buffy (light avellaneous instead of light drab) ground color of the upper parts with pale buffy brown (instead of hair brown) wings and central tail feathers, and much less prominent as well as paler (cinnamon rather than deep tawny) streaking on the lateral under parts.

Birds from Zaidam, however, are decidedly intermediate, combining, as they do, the pale general coloration and dimensions of *albosuperciliaris* with the strongly pronounced, deep tawny flank-streaking of *pekinensis*. This having also been noticed by Pleske (o. c., p. 129), there can be little doubt that the Zaidam birds constitute a separable form. Its proper name is *R. pekinensis major* Przewalski.

Turdus viscivorus bonapartei Cabanis. Himalayan Mistle Thrush.

Turdus bonapartei CABANIS, Journ. Orn., 8, p. 183, 1860—Himalaya.

CHINESE TURKESTAN, TIAN SHAN: North Musart River, ♂ ad. (in annual molt), September 13, 1925.—Wing 168 mm.

The eastern race of the Mistle Thrush is a common breeding bird in the mountain forests of the Tian Shan. Severtzow (1875, p. 178) lists it as generally distributed from the Ala-tau and Chatkal-tau east to the Issik-kul; Almásy (see Smallbones, p. 413) found it nesting in the middle forest belt of the Terskei Ala-tau; Przewalski[1] in the valleys of the Zanma [=Tsangma], Kunges, and again on the northern slopes of the eastern Tian Shan between Barkul and Hami; Kollibay (1917, p. 449) records birds taken in May and June at Pskem and Narynsk. Besides, it breeds in Ferghana (Alai, Ferghana Range), Samarkand (Hissar Range), the Pamir, northern Baluchistan, in the western Himalayas, from the Afghan frontier east to Nepal. It does not occur in the plains of the Tarim basin.

Birds from Turkestan are absolutely identical with a series from the Himalayas, the length of the wing varying between the same limits (160 to 172 mm.).

[1]See Pleske, Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 3, 1889.

Turdus ruficollis atrogularis Temminck. Black-throated Thrush.

Turdus atrogularis TEMMINCK, Man. d'Orn., 2nd ed., 1, p. 169, 1820—". . . rarement en Autriche et en Silésie, plus commun en Hongrie et en Russie. . ."

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, ♀ ad., Sept. 5, 1925.

The center of the breeding range of the Black-throated Thrush is western Siberia, but it also nests in small numbers in the Tian Shan. In addition to Severtzow's general record (1875, p. 178) for the western districts, Almásy states, as reported by Smallbones (p. 413), that it breeds rarely in the old poplar groves near Ilysky, more abundantly around the Issik-kul.

On migration, it is common along the rivers of the Tarim basin, where it was met with both by Przewalski and Prince Orléans's party (Oustalet, 1893, p. 149), while Scully (p. 140) tells us that a good many spend even the winter in the plains of Yarkand and Kashgaria. The Second Yarkand Mission (Sharpe, p. 92) also found this thrush in winter at various localities in the Yarkand plains.

Turdus merula intermedius (Richmond). Turkestan Blackbird.

Merula merula intermedia RICHMOND, Proc. U. S. Nat. Mus., 18, p. 585, 1896—Aksu, eastern Turkestan.

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, two ♂♂, one ♀ (all in juvenile plumage), Sept. 4, 5, 1925.

Much larger (wing 132-137 mm.) than specimens in corresponding plumage from various parts of Europe, and agreeing with the measurements of winter birds from Narynsk and Tashkent.

Although Severtzow (1875, p. 178) lists the Blackbird as a permanent resident throughout the Tian Shan from the Kara-tau and Sir Darya to Kopal and the Issik-kul, I cannot find any other breeding record from our region. Richmond described the present race from an adult female obtained by W. L. Abbott near Aksu on November 20, 1893. A second example of the same sex was taken, a few days later, at Karatol. Scully (p. 139) who secured specimens at Yarkand in February, tells us that the Blackbird migrates northwards in spring, repairing to the hills and the country about Maralbashi, where it is said to breed.

Schalow (1908, p. 249) mentions both "*M. m. merula*" and "*M. m. maxima*" as occurring in the Tian Shan. It is, however, pretty certain that the records of the earlier authors (Menzbier, Bianchi, Pleske), to which he refers, all belong to *T. m. intermedius*,

the only representative of the Blackbird in Turkestan. The larger *T. m. maximus* is evidently restricted to the northwestern Himalayas (Kashmir, Kurram, and N. W. Frontier Province), while another race of equally large size, but with a smaller bill, *T. m. buddae* Meinertzhagen,[1] takes its place in alpine Sikkim and southern Tibet.

Monticola cinclorhyncha (Vigors). Blue-headed Rock Thrush.

Petrocincla cinclorhyncha VIGORS, Proc. Comm. Sci. Corresp. Zool. Lond., **1**, "1830-31," p. 172, pub. March 2, 1832—Himalayas; = Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p. 471).

KASHMIR: Baltal (alt. 9,500 ft.), ♂ ad., May 23, 1925.

Widely diffused in the Himalayas from the Afghan frontier to Darjeeling. Richmond (p. 488) records a male from the Lolab Valley; Biddulph, according to Sharpe (p. 94), obtained specimens at Sonamarg; and Osmaston (Journ. Bomb. Nat. Hist. Soc., **31**, p. 985, 1927) states that, while not a common bird in Kashmir, it is widely distributed both on the Pir Panjal and Himalayan slopes in rather open forest between 6,000 and 10,000 feet. It is not found in Ladak.

Monticola solitaria pandoo (Sykes). Indian Blue Rock Thrush.

Petrocincla pandoo SYKES, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 2, "1832," p. 87, pub. Oct., 1834—"in the dense woods of the Ghauts," Dukhun.

LADAK: Chunagund (alt. 9,000 feet), Dras-Shigan River, ♂ ad., May 27, 1925.

The Indian Blue Rock-Thrush breeds in the Himalayas from Afghanistan east to Sikkim and southern Tibet, extending north to Turkestan (Ferghana, Tian Shan) and west into the hills of northern Baluchistan and Sind (Khirthar Range). According to Osmaston (Ibis, 1925, p. 686) and Meinertzhagen (Ibis, 1927, p. 579), it is fairly abundant between 5,500 and 13,500 feet in suitable localities throughout the Indus and Shyok valleys in Ladak. Henderson (p. 190) records it from Leh and Shergol; Sharpe (p. 94) from Dras, Kharbu, and Leh; Richmond (p. 488) from Sonamarg, Kashmir, and the Dras Valley; Oberholser (p. 222) from Saspul, on the Indus, Ladak. Bates (Journ. Bomb. Nat. Hist. Soc., **29**, p. 799, 1923) found it nesting on the shore of Wular Lake in Kashmir. Babault (p. 180) lists it for the Simla Hills, Kulu, and Lahul, and Whistler encountered it in small numbers in the two last-named countries as well as in Spiti.

[1]Bull. Brit. Orn. Cl., **46**, p. 98, 1926—Gyangtse, southern Tibet.

Myiophonus horsfieldi temminckii (Vigors). Himalayan Whistling Thrush.

Myophonus Temminckii VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, "1830-31, p. 171, pub. March 2, 1832—Himalayas; = Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p 471).

KASHMIR: Gund (alt. 7,000 ft.), ♂ ad., May 21; Baltal (alt. 9,400 ft.), ♂ (first annual), May 23, 1925.

The Himalayan Whistling Thrush, widely distributed in the Himalayas, is reported to be abundant in Kashmir. In Ladak it is restricted to the extreme western section, being found along the streams draining the northeast slope of the Great Himalayan barrier. Osmaston (Ibis, 1925, p. 686) records it from the Dras and Suru valleys, and Meinertzhagen (Ibis, 1927, p. 580) likewise met with several individuals between Kargil and Skardu, the species, according to the same authority, becoming very common as lower levels are reached. Richmond (p. 492) lists a specimen from Rondu, Baltistan.

In Turkestan it is replaced by a somewhat larger form, *M. h. turcestanicus* Sarudny.

Oenanthe oenanthe argentea (Lönnberg). Eastern Wheatear.

Saxicola oenanthe argentea LONNBERG, Ark. Zool., 5, No. 9, p. 22, 1909—Kjachta and Kiran, Mongolia.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♂ ad., ♀ ad., Aug. 28, 1925.—Wing (male) 101, (female) 95 mm.

The male has no more white on the forehead than certain European specimens, but its wings are rather long, though even in that respect it is matched by another from Thurbstone, England. The female cannot be distinguished either in size or color from Swedish examples. Meinertzhagen (Ibis, 1922, p. 16) believes that the characters of the supposed eastern race are too inconstant to justify its separation, and we are inclined to agree with him. Ticehurst (Journ. Bomb. Nat. Hist. Soc., **31**, p. 103, 1926), however, advocates the discrimination of an Asiatic race, for which he uses Hemprich and Ehrenberg's term *rostrata*. Without large series of breeding birds, it will be hard to definitely settle this much disputed question.

The Wheatear is widely distributed in the Tian Shan, according to Severtzow (1875, p. 178). Breeding birds were also recorded by Schalow (1908, p. 251) from the region around Issik-kul, and by Laubmann (p. 92) from Narynsk.

Oenanthe deserti atrogularis (Blyth). Eastern Desert Chat.

Saxicola atrogularis BLYTH, Journ. Asiat. Soc. Beng., **16**, (1), p. 131, in text, 1847—"common in the Upper Provinces, Scinde, etc."

CHINESE TURKESTAN: Abad, ♀ ad., ♀ (in juvenile molt), Aug. 13; Kisil Bulok, (♀) ad., Sept. 17; Shurbulak Pass, ♀ ad., Nov. 1, 1925.

Compared with a good series from Egypt, these birds differ by somewhat larger size and deeper, more brownish coloration. As far as dimensions and restricted amount of white edging along the inner web of the remiges are concerned, all of the specimens are typical *atrogularis*, and show not the least approach to *O. d. oreophila*.

The female from Abad, still wearing part of the fluffy juvenile plumage, proves that this Chat breeds at the southern foot of the Tian Shan. An adult male, obtained by W. L. Abbott on Sept. 11, 1893 at Chong Terek Village (alt. 7,000 ft.) in the Tian Shan, north of Kashgar, and recorded by Richmond (p. 584) as *S. montana*, is a typical specimen of *atrogularis*, to which birds from Narynsk in the Munich Museum likewise belong.

In the plains of the Tarim basin, no wheatear of this group appears to be nesting, but in the hills bounding it on the south we meet again with a representative form. Henderson and Hume (p. 205, *S. atrogularis*) record it as breeding in the Karakash Valley; Scully (p. 143, *S. deserti*) found it in the desert ground between Sanju and Karghalik as well as between Shahidullah and Gulgunshah in the Karakash Valley at elevations ranging from 4,500 to 12,000 feet; the Second Yarkand Mission (Sharpe, p. 85, *S. montana*) obtained specimens at Karghalik and Kugiar; and Richmond (p. 584), in his report on Abbott's collection, lists it under the same name from Kilian (alt. 7,000 ft.) and Sughet Pass (13,000 ft.).

Thanks to Dr. Richmond's courtesy, I have been permitted to reexamine the three skins, and refer them unhesitatingly to *O. d. oreophila*, although those from Kilian have perhaps not quite so much white in the wing as those from higher altitudes. Pleske[1] also assigns birds from the Khotan-tagh and Russian Range to "*S. montana*," and his measurements closely agree with those of Ladak specimens. I do not understand why Hartert[2] should be so reluctant to admit the distinctness of this form, which, as pointed out by Ticehurst (Ibis, 1922, pp. 155-158) and more recently by Meinertzhagen (Ibis, 1927, p. 581), possesses perfectly good characters of its own and enjoys a separate range, both in the breeding season and

[1]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 41, 1889.

[2]Vög. Pal. Fauna, Nachtrag 1, pp. 58-59, 1923.

in winter. Sixteen birds from Ladak, Rupshu, and Lahul, examined by us in the U. S. National Museum and the Paris Museum fully substantiate its validity. Two breeding males from the Tagdumbash Pamir, alt. 12,000 feet (May 1, and June 17, 1894), are likewise typical *oreophila*.

Oenanthe isabellina (Cretzschmar). Isabelline Chat.

Saxicola isabellina CRETZSCHMAR, Atlas zu Ruppells Reise im nordlichen Afrika, Vogel, p. 52, pl. 34, fig. b, "1826"[1]—Dongola, Nubia.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes River, ♂ ad., Aug. 23, 1925.

This as well as other specimens from Turkestan seem to agree with an Egyptian series in Field Museum.

The Isabelline Chat, which is widely diffused throughout Palaearctic Asia from southern Russia east to northern China, is common in Turkestan. According to Scully (p. 142), it is a summer resident in the plains of the Tarim basin, at elevations of from 4,000 to 6,300 feet, from the middle of April to the middle of August. It frequents waste ground on the borders of cultivation, and breeds around Yarkand in April and May. It also nests in the Tian Shan, as we are told by Severtzow (1875, p. 178), Smallbones (p. 413), Schalow (1908, p. 252), and Laubmann (p. 94).

I do not know on what authority Baker's[2] statement is based that this bird breeds in "northeastern Kashmir and Ladak." Ward's note (1906, p. 481), "has been found in Baltistan," is too indefinite to be of any value.

Oenanthe pleschanka pleschanka (Lepechin). Pied Chat.

Motacilla pleschanka LEPECHIN, Nov. Comm. Acad. Sci. Petrop., 14, p. 503, pl. 24, 1771—Saratow, southern Russia.

CHINESE TURKESTAN: Yaka-kuduk (near Maralbashi), ♂ juv., Sept. 23; Oku Mazar (near Maralbashi), ♂ juv., Sept. 25; Shurbulak Pass, west of Kashgar, ♀ ad. Nov. 1, 1925.

I have no topotypical material to compare with, but birds from Transcaspia and Russian Turkestan are apparently inseparable from those of the Tarim basin. *Saxicola hendersoni* Hume[3] was

[1]Probably published much later (see Zimmer, Field Mus. Nat. Hist., Zool. Ser., 16, p. 535, 1926).

[2]Fauna Brit. India, 2nd ed., Birds, 2, p. 50, 1924.

[3]Ibis, (3), 1, p. 408, 1871—"collected during the Yarkand Expedition" by Dr. Henderson; the types came from the Arpalak River (near Sanju) and Koshtagh, southern border of the Tarim basis (see Hume and Henderson, Lahore to Yarkand, p. 206).

obviously based on the fall plumage,[1] and the plate of the male in "Lahore to Yarkand" (pl. 13) agrees minutely with the Yaka-kuduk specimen of that sex in the collection. According to Scully (p. 144), who recorded it under Hume's name from the country between the Kilian and Sanju rivers, this chat breeds in Kashgaria. Pleske, in his memoir on Przewalski's collection,[2] cites numerous localities from the Tarim basin, where the species seems to be pretty common during migration, and states that it prefers the mountain valleys and foothills as nesting ground. In the Tian Shan, Almásy, as reported by Smallbones (p. 413), found it breeding in the steppe along the south shore of the Issik-kul, and it doubtless occurs in other suitable places. It also breeds in the extreme northwest of British India. Biddulph (Ibis, 1882, p. 277) records a nest with five hard-set eggs, taken in Astor, on June 26, at an elevation of 7,000 feet; Richmond (p. 480) lists specimens obtained by W. L. Abbott at Kargil and Pashgam on June 24 and 25, 1893; Ward (1908, p. 462) reports on a pair seen building at Kargil on May 28; and Meinertzhagen (Ibis, 1927, p. 582) found it quite common in August all the way from Kargil to Skardu in Baltistan. Kashmir birds, as pointed out by Richmond, are smaller than those from Turkestan and may be separable subspecifically, in which case one of the several names bestowed on winter birds from Arabia or Africa might be found to be applicable.

Saxicola torquata indica (Blyth). Indian Stone Chat.

Pratincola indica BLYTH, Journ. Asiat. Soc. Beng., **16**, (1), p. 129, 1847—India.

KASHMIR: Gund (alt. 7,000 ft.), ♀ ad., May 21, 1925.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes River, ♀ (juvenile plumage), Aug. 24; Ox-su River, Tekes Valley, one ♂, two ♀ ♀ ad., Aug. 29; Simtash, above Agijas Canyon, Tekes Valley, two ♂ ♂ (in juvenile molt), one ♀ ad., Aug. 31, 1925.

Two additional specimens, adult males, were secured on December 26, 1925 and January 2, 1926 at Alapalli, Chanda district, Central Provinces.

The Indian Stone Chat is widely diffused in Turkestan as well as in the Himalayas. Birds from Kashmir and the Tian Shan appear to be perfectly alike.

The few Kansu specimens of *S. t. przewalskii* (Pleske) examined in this connection are somewhat larger, more rufous on the belly,

[1]As pointed out long ago by Scully (Ibis, 1881, p. 443).

[2]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 38, 1889.

and have the white patch on the sides of the neck rather smaller. The differences are, however, not very striking, and the distribution of this form during the breeding season is not quite clear. Pleske[1] extends its range west to the Russian and the Keriya ranges,[2] and refers to it also the Stone Chat found by Scully (p. 142) in August in bushes of willows and buckthorn fringing the Sanju stream at elevations of from 9,000 to 11,000 feet. Meinertzhagen (Ibis, 1927, p. 583) records several examples taken early in May at Leh, Ladak, but in spite of the late date, believes them to have been on passage. Oustalet (1893, p. 169) is no doubt mistaken in assigning a (young) male taken on August 28, 1889, at Jarkent to *S. t. przewalskii.* More detailed information about the breeding range of this form is urgently required.

Ianthia cyanura pallidior Baker. Kashmir Red-flanked Bush Robin.

Ianthia cyanura pallidiora (sic) BAKER, Fauna Brit. India, 2nd ed., Birds, 2, p. 101, 1924—Simla

KASHMIR: Baltal (alt. 9,500 ft.), ♂ ad., May 24, 1925.

Examination of the large series in the British Museum shows this to be rather a poor race and hardly worthy of recognition, a good many individuals being indistinguishable from *I. c. rufilata,* of the eastern Himalayas.

Its breeding range extends from the Afghan frontier east to Garhwal. Not found in Ladak.

Chaimarrornis leucocephala (Vigors). White-capped Redstart.

Phoenicura leucocephala VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, "1830-31," p. 35, pub. March, 1831.—Himalayas; —Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p. 471).

KASHMIR: Sonamarg (alt. 8,500 ft.), Sind River, ♂ ad., May 23; Baltal (alt. 9,500 ft.), ♂ ad., May 23, 1925.

The White-capped Redstart is widely distributed throughout the Himalayas from the Afghan border east to Tibet, China, and neighboring countries. While common in Kashmir, its occurrence in Ladak is restricted to the western section. Biddulph (in Sharpe, p. 86) says it is common in the Dras Valley from the Zogi La down to Kargil; Mrs. Wathen (Journ. Bomb. Nat. Hist. Soc., 29, p. 698, 1923), on her trip across Ladak, noticed it as far east as beyond Kar-

[1]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, pp. 46, 52, 1889.

[2]The measurements given for the specimens from Achan, Russian Range (p. 52), indeed appear to support his view.

gil; Osmaston (Ibis, 1925, p. 681) found it, though not common, on the upper waters of the Dras and Suru rivers; and Meinertzhagen (Ibis, 1927, p. 587) also observed a few between Dras and Kargil, and another farther east at Moulbekh.

I do not see any difference between Indian and Chinese specimens.

Rhyacornis fuliginosa fuliginosa (Vigors). Plumbeous Redstart.

Phoenicura fuliginosa VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, "1830-31," p. 35, pub. March, 1831—Himalayas; =Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p. 471).

KASHMIR: Above Tangan Gorge (alt. 8,000 ft.), ♀ ad., May 23, 1925.

This species breeds throughout the Himalayas from Chitral east, and is also widely diffused in China and neighboring countries. It is obviously absent from Ladak.

Phoenicurus ochruros phoenicuroides (Horsfield and Moore). Kashmir Redstart.

Ruticilla phoenicuroides HORSFIELD and MOORE, Cat. Birds Mus. East-India Comp., 1, p. 301, 1854[1]—Shikarpore, Afghanistan, coll. Griffith; type now in British Museum.

KASHMIR: Baltal (alt. 9,500 ft.), two ♀ ♀ ad., May 23, 24, 1925.

LADAK: Matayan (alt. 11,000 ft.), ♂ ad., May 25; Kargil (alt. 8,800 ft.), ♂ ad., May 26; Fotu La (alt. 13,800 ft.), ♂ ad., May 30; Nurle, Indus Valley (alt. 11,000 ft.), ♂ (first annual), May 31; Leh, two ♂ ♂ ad., ♀ ad. (nesting), June 3, 5; Panamik, Nubra, ♂ (first annual), ♀ ad. (breeding), June 11, 13, 1925.

CHINESE TURKESTAN: Ali Mazar, Kurghan (alt. 11,300 ft.), upper Karakash River, Hill Yarkand, ♂ ad., June 30, 1925; Kailik (alt. 7,500 ft.), South Musart River, Tian Shan, ♀ ad., Sept. 16, 1925.

Aside from a slight variation in the amount of black on the upper back, the adult males are very constant in their characters, and agree with the series from Kashmir and the Kaghan Valley in the British Museum. Birds from Lahul and Rupshu, collected by Babault (p. 174, s. n. *Ruticilla rufiventris*) and preserved in the French National collection, are also similar. The length of the wing, in males from the western Himalayas, ranges from 82 to 85 mm.

The single male from Hill Yarkand is identical in coloration, but by slightly longer wings (87 mm.) manifests a certain tendency in the

[1]Horsfield and Moore's account appears to have slight priority over Moore's description of *R. phoenicuroides*, in Proc. Zool. Soc. Lond., 22, p. 25, pl. 57, which was not published until January 10, 1855.

direction of *P. o. xerophilus* Stegmann,[1] of the Russian Range and western Nan Shan.

P. o. phoenicuroides inhabits the western Himalayas east to Spiti and Kulu,[2] and stretches west to Afghanistan and Baluchistan, north to Turkestan and the southern Altai. During the nesting season it does not occur in the Tarim basin, but breeds in the surrounding mountain ranges. Scully (p. 144, *R. rufiventris*) found it common in August on the Arpalak River and other mountain streams in Hill Yarkand at elevations of from 7,000 to 10,000 feet. The Second Yarkand Mission (Sharpe, p. 87) met with it at various localities in Sarikol as well as in the hill country around Kugiar, south of Karghalik, in May and June. It is well known to breed in the Tian Shan, whence it has been recorded by numerous authorities (see Laubmann, p. 97). Birds from Narynsk and the vicinity of the Issik-kul, which we have examined in the Munich Museum, appear to be inseparable from those of northwestern India.

P. o. rufiventris is now known to be restricted to Tibet and parts of China.

Phoenicurus frontalis (Vigors). Blue-fronted Redstart.

Phoenicura frontalis VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, "1830-31," p. 172, pub. March, 2, 1832—Himalayas; = Simla-Almora district (see Ticehurst and Whistler, Ibis, 1924, p. 471).

KASHMIR: Baltal (alt. 9,500 ft.), ♂ ad., ♀ ad., May 23, 1925.

While generally diffused throughout the Himalayas from Gilgit and Kaghan eastward, this Redstart is obviously absent from Ladak. The alleged Chinese form (*P. frontalis sinae* Hartert) seems barely separable.

Phoenicurus erythrogaster grandis (Gould). Guldenstädt's Eastern Redstart.

Ruticilla grandis GOULD, Proc. Zool. Soc. Lond., 17, "1849," p. 112, pub. 1850—"Afghanistan and Thibet."

CHINESE TURKESTAN, HILL YARKAND: Ali Mazar, Kurghan (alt. 11,300 ft.), upper Karakash, ♂ ad., June 30, 1925.

Identical with specimens from the Tian Shan (Narynsk).

This fine Redstart is widely distributed throughout the high mountain ranges of Turkestan and the Himalayas from Baltistan east to Sikkim and southern Tibet. It is fairly common in Ladak,

[1]Journ. Orn., 76, p. 501, 1928—Russian Range.

[2]Whistler, Journ. Bomb. Nat. Hist. Soc., 31, p. 465, 1926.

but does not seem to occur in Kashmir proper. In Hill Yarkand, Henderson (p. 210) and Scully (p. 144) met with it near Sanju Pass at an elevation of between 12,000 and 13,000 feet, where a young bird, about two months old, was collected. The Second Yarkand Mission, according to Sharpe (p. 88), secured specimens west of Yarkand. In the Tian Shan, this Redstart is likewise generally diffused. During the breeding season it lives by mountain streams at extreme elevations (between 12,000 and 16,000 feet), but descends to lower altitudes on the approach of severe weather. Menzbier (p. 356), for example, mentions that numbers of this Redstart were met with in the beginning of October along the Taushkan Darya, near Uchturfan, on the south slope of the Tian Shan. Whistler (Ibis, 1925, p. 173) and Osmaston (Ibis, 1925, p. 682) recently described its nesting habits from observations in Lahul and Ladak respectively.

In Kansu and other parts of northeastern Tibet, the present form is replaced by the larger *P. e. maximus* Kleinschmidt.

Luscinia megarhynchos golzii Cabanis. Turkestan Nightingale.

Luscinia golzii CABANIS, Journ. Orn., 21, p. 79, 1873—Turkestan, coll. Fedtschenko.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♂ ad., Aug. 25, 1925.

Duller above, with less rufescent tail, and rather more buffy underneath than twelve skins of typical *megarhynchos* from various parts of Europe in the collection of Field Museum.

Severtzow (1875, p. 177) lists the Nightingale as breeding throughout the Tian Shan from the Karatau and Zerafshan east to the Issik-kul; Almásy, as reported by Smallbones (p. 412), found it common along the middle and lower Ili; and Pleske (1888, p. 32) records it from Chinaz and the Iskander-kul in the Chatkal-tau.

Cyanosylvia svecica abbotti (Richmond). Ladak Blue-throat.

Cyanecula abbotti RICHMOND, Proc. U. S. Nat. Mus., 18, p. 484, 1896—Nubra Valley, Ladak (type examined).

LADAK: Panamik, Nubra, four ♂♂ ad., June 11, 12, 13, 1925.

Additional specimens.—U. S. National Museum: three ♂♂ ad., Nubra Valley, alt. 11,000 ft., June 16, 18, 1893 (including the type of *C. abbotti*); Pashgam, Indus Valley, 9,000 ft., ♂ ad., June 25, 1893; Leh, alt. 12,000 ft., ♂ ad., July 5, 1893. W. L. Abbott.—British Museum: Indus Valley, Ladak, alt. 10,000 ft., ♂ ad., June 29, 1874. J. Biddulph (labeled *C. wolfi*); Nubra Valley, four ♂♂ ad., June 25, 1874. J.

Biddulph;[1] Pashgam, Ladak, alt. 9,300 ft., two ♂♂ ad., May 5, 1923. B. B. Osmaston; Wakka Nala, Ladak, alt. 10,000 ft., two ♂♂ ad., May 7, 1923. B. B. Osmaston; Shushot, Indus River, alt. 10,600 ft., ♂ ad., ♀ ad., May 31, 1923. B. B. Osmaston; Spituk (below Leh), alt. 10,500 ft., two ♂♂ ad., two ♀♀ ad., May 26, 29, 1923. B. B. Osmaston.

Sixteen more specimens from Kargil, Leh, Chimre, and Nubra I have examined in Col. Meinertzhagen's collection.

When separating *C. abbotti*, Dr. Richmond based his description on three white-starred males, referring a red-starred individual taken at the same time in Nubra as well as others from the Indus Valley to *C. svecica*. Baker,[2] on the basis of Ludlow's observations,[3] admitted two species breeding in the Indus Valley, calling the red-spotted form *C. s. pallidogularis*, the white-spotted one *C. c. abbotti*. Osmaston (Ibis, 1925, p. 683), while listing the two varieties under separate names, expressed the belief that the difference in the color of the star might be an example of dimorphism, and in a later communication (Journ. Bomb. Nat. Hist. Soc., **31**, p. 983, 1927) actually united all the Blue-throats of Ladak under *C. cyanecula abbotti*. Finally, Col. Meinertzhagen (Ibis, 1927, pp. 589-590) discussed the case at length, and came to the conclusion that there was but one variable form in Ladak, as had already been intimated by Hartert.[4]

My own studies lead to exactly the same results. All breeding birds from Ladak, regardless of the color of the star, agree *inter se* in relatively long bill, dark brownish upper parts, deep blue throat (varying from cadet blue to flax-flower blue), and smallness of the star. The latter is either uniform tawny (ochraceous tawny); or tawny (ochraceous tawny), with the extreme basis of the feathers white; or white, tipped with ochraceous tawny; or plain white. Among twenty-two adult males, eleven are white-starred, six rufous-starred, and five intermediate,[5] those with the white star having the blue of the throat generally of a darker tone. The bluish suffusion of the lores, well pronounced in the majority, is evidently independent of the coloration of throat or star. Birds from the Indus Valley perhaps average slightly paler on the throat than those from Nubra.

[1]Three white-starred individuals labeled *C. wolfii*, one red-starred named *C. svecica*.

[2]Fauna Brit. India, 2nd ed., Birds, **2**, pp. 85, 86, 1924.

[3]Journ. Bomb. Nat. Hist. Soc., **27**, p. 143, 1920.

[4]Vög. Pal. Fauna, **1**, p. 750, 1910.

[5]The same variation may be observed in the South Russian *C. s. occidentalis*, which Field Museum has from the lower Volga (Sarpa steppe).

The breeding area of *C. s. abbotti* is apparently restricted to Ladak, ranging from Kargil in the west through the Indus and Shyok valleys east to the Nubra River (7,000 to 12,000 feet). In the north, it does not cross the main Karakoram Range,[1] and in Hill Yarkand it is replaced by the pale-throated, large-starred *C. s. pallidogularis*, as shown by two breeding males obtained by Scully and Stoliczka in the British Museum. It is extremely doubtful whether it really extends to the Pamir and Alai, as claimed by Hartert,[2] as no blue-throat appears to breed in either Kashmir proper or Gilgit, and I am also inclined to question its occurrence anywhere else in Turkestan, although Sarudny[3] apparently includes *C. s. abbotti* among the blue-throats found in that province. Unfortunately, his review is a sealed book to me owing to its being written in the Russian language.

C. s. abbotti winters in the plains of India.

Cyanosylvia svecica pallidogularis (Sarudny). Sarudny's Blue-throat.

Cyanecula suecica var. *pallidogularis* SARUDNY, Mater. Kennt. Fauna and Flora Russ. Reiches, 3, p. 186, 1897—Orenburg, Transcaspia, and Turkestan (see Ornith. Monatsber., 6, p. 83, 1898).

CHINESE TURKESTAN: Oku Mazar, near Maralbashi, ♂ (first winter), Sept. 25; Ox-su River, Tekes Valley, Tian Shan, ♀ (first winter), Aug. 30, 1925.

In comparison to *C. s. abbotti*, this race is brighter and paler, more buffy brown above, has a shorter bill, wider buffy whitish superciliaries, and a much paler (forget-me-not) blue throat, while the light tawny star is much more extensive, forming a broad semilunar marking. Among thirty adult males from Turkestan (Tian Shan, Tashkent, etc.) in the Munich Museum, there are only two from Narynsk (April 22, and May 12, 1910) with the star partly rufous and partly white. In all the others it is quite uniform tawny. In contradiction to Hartert,[4] who includes Eastern Turkestan in the range of *C. s. abbotti*, the blue-throat breeding in the Tarim basin proves to belong to the Tian Shan race, which I believe to be entitled to the name *C. s. pallidogularis*, although I have not been able to

[1]The blue-throats mentioned by Henderson and Hume (p. 214) s. n. *C. suecica* from the upper Karakash were taken during the fall migration. The British Museum has a female from Shahidulla, Sept. 20, 1870, and a young female from Kush Maidan, Sept. 26, 1870. Both are in very poor condition, but as far as I can see, they belong to the Turkestan form, *C. s. pallidogularis*.

[2]Vög. Pal. Fauna, 1, p. 750, 1910.

[3]Mess. Orn., 3, pp. 308-316, 1912.

[4]Vög. Pal. Fauna, 1, p. 750, 1910.

compare specimens from Orenburg, which seem to have served as principal basis for Sarudny's description. An adult male, secured by J. Scully at Yarkand on May 3, 1875, and preserved in the British Museum, is indistinguishable from Tian Shan birds, and another male shot by F. Stoliczka in Hill Yarkand, north of Kugiar (south of Karghalik) on June 1, 1874, belongs to the same race.

According to Scully (p. 145), the blue-throat is a seasonal visitant to the plains of Eastern Turkestan, arriving about the end of March and leaving in September. It breeds in the neighborhood of Yarkand, laying in May. Stoliczka, as recorded by Sharpe (p. 89, *C. caerulecula*), found it nesting near Karghalik on May 29, and shot a specimen further south on the road to Kugiar on June 1, 1874.[1] Przewalski, we are told by Pleske,[2] noted it as an abundant breeding species in the oases of Niya and Keriya at the northern foot of the Kuenlun, while Abbott, according to Richmond (p. 585), obtained an immature male on August 4, 1894 at Kilian, alt. 6,000 feet. It also breeds in the Tian Shan, where Przewalski met with it in the valleys of the Ili, Yulduz, and Chaidyk-gol. Almásy (see Smallbones, p. 412) found it in the Balkash lowlands as well as on the plateaux of the Sary-djass, while Laubmann (p. 100) lists breeding specimens from Narynsk.

On migration, it passes through northern India. Two adult males, obtained by W. L. Abbott in Baltistan at Skardu (March 18, 1892) and Gol (March 21, 1892)[3] which, thanks to the courtesy of Dr. Richmond, I have been enabled to examine, are typical of *C. s. pallidogularis*, and agree in every respect with Tian Shan birds.

The exact limits of its breeding range are difficult to indicate. It will be remembered that Sarudny[4] described a white-starred form from Turkestan (Tashkent; Ferghana) as *C. leucocyana turkestanica*, but its relationship to *C. s. pallidogularis* requires thorough investigation. The two races recently described by Sushkin[5] from western Siberia and the Altai are evidently different, judging from specimens in the Munich Museum.

[1]There can be little doubt that the "quite young bird" obtained by Henderson at Sanju, alt. about 6,000 ft., and listed as *C. suecica* (p. 214) should likewise be referred to *C. s. pallidogularis*.

[2]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 70, 1889.

[3]*C. suecica* RICHMOND, p. 483.

[4]Ornith. Monatsber., 18, p. 122, 1910.

[5]List and Distribution of Birds of the Russian Altai, etc., pp. 77, 78, 1925.

Leptopoecile sophiae sophiae Severtzow. Tit-Warbler.

Leptopoecile sophiae SEVERTZOW, Izv. Obshch. Moskov., 8, No. 2, p. 135, pl. 8, figs. 8, 9, 1873—"spruce" forests on the Issik-kul, Tian Shan.

CHINESE TURKESTAN, TIAN SHAN: Han Aulik, North Musart River, ♂ ad., Aug. 18, 1925.

LADAK: Panamik, Nubra, ♂ juv., June 11, 1925.

The Han Aulik bird agrees with a series from the Issik-kul in the Munich Museum. Others from the Alai and Ferghana ranges are also similar.

The status and ranges of the two western races of this species seem to require further investigation. Hartert[1] separates *L. s. deserticola*, distinguished by paler coloration, particularly more sandy, less grayish back, and gives as its distribution the mountain chain along the southern border of the Tarim basin and Gobi desert, from the Russian Range east to the Altyn-tagh and Zaidam (Naichigol). Nevertheless, he relegates *Stoliczkana stoliczkae* Hume,[2] described from the vicinity of Sanju Pass, in the Kilian Range south of the Tarim basin, to the synonymy of *L. s. sophiae* (whose distributional area is given as extending from the Tian Shan to Gilgit), and claims that Hume's type belongs to the dark colored typical race. Bianchi,[3] however, refers birds from Tochtachon (northern slope of Raskam Range),—which is even farther west than the Sanju River,—to the pale form inhabiting the Altyn-tagh and Nan Shan, and calls it *L. s. stoliczkae*. This disposition of the case would seem to be more logical than Hartert's arrangement, which splits the Tit-Warblers of the Kuenlun into two races. Not having any material from the disputed region, we must leave it to others to decide the problem; but we would like to mention that a single adult male from the Braldu Valley, Baltistan, Jan. 2, 1892, W. L. Abbott (U. S. National Museum, No. 126755) hardly differs from Tian Shan birds by being a slight shade paler on the back. Meinertzhagen (Ibis, 1927, p. 415), too, notices that two males from Leh, Ladak, agree with others from the Tian Shan. Thus, typical *L. s. sophiae* would seem to stretch across Gilgit and Baltistan as far east as Ladak.

[1]Vög. Pal. Fauna, 1, p. 401, 1907—no locality specified, but from a later communication (Nov. Zool., 27, p. 441, 1920) we learn that the type was obtained by M. W. Pewtzow in November, 1889 at Karasai, on the north slope of the Russian Range, Kuenlun.

[2]Stray Feathers, 2, p. 513, 1874—"obtained at very high elevation in Thibet by Forsyth's second Yarkand expedition"; the type came from Kichik Yailak, at the head of the Sanju River, southern Chinese Turkestan (see Sharpe, Scient. Res. Second Yarkand Mission, Aves, p. 67, No. 858, ♂ "Gidjik," Oct. 24, 1873).

[3]Bull. Acad. Sci. St. Pétersb., (5), 22, pp. 43-44, 1905.

Four adult males from the Kukunor Mountains in western Kansu, courteously lent by the Museum of Comparative Zoology, Cambridge, on the other hand, are decidedly darker throughout, with the light abdominal area more restricted and of a deeper buff. They do not agree with Hartert's description of *L. s. deserticola* and, while certainly different from *L. s. obscura* as represented by a series from southwestern Kansu (near Choni), they may be referable to *L. s. major* Menzbier (Ibis, 1885, p. 353), based on specimens from the Taushkan Darya around Uchturfan, near the southern foot of the Tian Shan.

Typical *L. s. sophiae* is known to breed in the central and western ranges of the Tian Shan (Naryn Valley, Issik-kul, North Musart River), north to the Boro-khoro Range (Jarkent), and to stretch west into Ferghana (Ferghana Range and Alai)[1] and Samarkand (Hissar Range, Zerafshan).[2] In Gilgit, Biddulph (Ibis, 1882, p. 280) found it in June in a secluded valley, close to the Indus, where the birds were doubtless nesting. It is rather rare in Ladak. Biddulph (Ibis, 1881, p. 71) shot a single young bird at Leh, where Meinertzhagen (Ibis, 1927, p. 415) also recently met with the species. Ward (1906, p. 111) calls it "fairly common on the Shyok, Ladak, and on the Indus," and received it in summer from the Nubra Valley (1908, p. 461), where it obviously breeds, as is shown by our own specimen, a full grown young bird from Panamik.

In the breeding season, this bird lives in the juniper forests at elevations between 9,000 and 12,000 feet, but descends to lower altitudes in severe weather. According to Przewalski's and Carruthers' observations, it is an early breeder, building its nest late in April or very early in May.

Prunella fulvescens juldussica Sushkin. Yulduz Hedge Sparrow.

Prunella fulvescens juldussica SUSHKIN, Proc. Boston Soc. Nat. Hist., 38, p. 50, 1928—Defile of Naryn, Tian Shan (in winter).

CHINESE TURKESTAN: Kailik (alt. 8,600 ft.), South Musart River, south slope of Tian Shan, ♂ ad., Sept. 16, 1925.

Compared with three winter specimens from the Issik-kul, this bird is somewhat darker and more grayish (less brownish) on the upper parts and deeper ochraceous underneath. Still, I am a little doubtful as to the constancy of these divergencies, since another adult from south of the Issik-kul (April) and an adult male from

[1]See Stolzmann, 1897, p. 69.
[2]Carruthers, Ibis, 1910, p. 453.

Gilgit (Dec. 1, 1879, J. Scully) are even paler, both above and below, than the Issik-kul skins mentioned above.

According to Sushkin, typical *P. f. fulvescens*, during the nesting season, inhabits the whole of Russian Turkestan as far northeast as the ranges around Issik-kul, whereas *P. f. juldussica* replaces it east beyond the Russian frontier, extending, however, into the Sarydjass Range and straggling in winter as far west as Przewalsk and Narynsk, i. e. into the breeding area of *P. f. fulvescens*.

I must confess I have not much confidence in the distinctness of these two alleged races, and would not be surprised if they ultimately turned out to have been based on individual or seasonal rather than geographical variation. At any rate, it is very unfortunate that the describer should have selected as type of *P. f. juldussica* a winter specimen taken far away from the supposed breeding range.

P. f. dresseri Hartert, from the mountain ranges along the southern border of the Tarim basin, on the other hand, appears to be a well-marked race, distinguishable by its exceedingly pale coloration.

Prunella atrogularis (Brandt). Black-throated Hedge Sparrow.

Accentor atrogularis BRANDT, Bull. Cl. Physico-Mathém. Ac. Sci. St. Pétersb., 2, p. 140, 1844—Semipalatinsk.

CHINESE TURKESTAN, TIAN SHAN: Han Aulik, North Musart River, ♂ juv., Aug. 19, 1925.

Field Museum has specimens, including breeding birds taken in July, from Narynsk, Tian Shan.

The Black-throated Hedge Sparrow is widely distributed in the mountainous regions of Central Asia. In the Tian Shan, it is a characteristic species of the alpine zone. Severtzow (1875, p. 177) lists it for the central section; Almásy, as recorded by Smallbones (p. 412), found it common in the mountain chains south and east of the Issik-kul, where Merzbacher (Schalow, 1908, p. 241) also met with it; and Pleske[1] tells us that Przewalski obtained specimens in June in the coniferous forests along the Zanma [=Tsangma] River. Besides, it occurs in the Alai and Ferghana Range, and extends north to the Altai and into Dsungaria, and is also found in the western Himalayas.

[1]Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 146, 1894.

Troglodytes troglodytes tianschanicus Sharpe. Tian Shan Wren.

Troglodytes pallidus (not of LAFRESNAYE and D'ORBIGNY, 1837) HUME, Stray Feathers, 3, p. 219, 1875—Kashgar (in winter).

Troglodytes tianschanica (Severtzow MS.) SHARPE, Cat. B. Brit. Mus., 6, p. 273, 1881—Turkestan.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes River, ♂ ad. (molting), two ♂♂ and one unsexed (juvenile plumage), Aug. 26, 27; Agijas, Tekes Valley, ♀ juv., Sept. 4; Mointa, Tekes Valley, ♀ juv., Sept. 7, 1925.

This pale race of the European House-Wren breeds in the Tian Shan. Severtzow (1875, p. 179[1]) indicates that it is found throughout this mountain system from the Kara-tau in the extreme west to the Issik-kul, north to Kopal. Lönnberg (1905, p. 19) records it from Baimgol, a tributary of the Tekes; Smallbones (p. 414) from Kapkak and Karakul-Przewalsk; Gyldenstolpe (p. 22) and Laubmann (p. 103) from Narynsk. According to Pleske,[2] it was observed (or collected) by Przewalski near the Sairam-Nor, on the Balgantai-gol, and along the Kunges and Zanma [=Tsang-ma] rivers, and the same ornithologist[3] tells us that the brothers Grum-Grzimailo met with this wren near Hami in the extreme east of the range. Stolzmann (1897, p. 75) reports on specimens taken by T. Barey in Ferghana, and Carruthers (Ibis, 1910, p. 464) states it is common in the rocky mountain-gorges near Samarkand. Northwards, its range extends to the Tarbagatai and Zaissan Nor.[4]

In the Tarim basin, *T. t. tianschanicus* is merely a winter visitor. Scully (p. 139) found it tolerably common near Yarkand; the Second Yarkand Mission (Sharpe, p. 97) secured specimens between November and February at Sanju, Bora, Yarkand, Yangihissar, and Kashgar; and Oustalet (1893, p. 203) mentions a single example taken by Prince Orléans's party in October at Chunkal, south of Kurla, near the Tarim River.

Cinclus cinclus leucogaster Bonaparte. White-bellied Dipper.

Cinclus leucogaster (Eversmann MS.) BONAPARTE, Consp. Av., 1, p. 252, 1850—"western Siberia."

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, ♀ ad., ♀ juv., Sept. 3, 4, 1925.

[1] *Troglodytes parvulus β. tianschanicus* is a nomen nudum here.

[2] Wiss. Res. Reisen Przewalski, 2, Birds, Part 3, p. 180, 1894.

[3] Bull. Acad. Sci. St. Pétersb., (nouv. sér.), 3, p. 132, 1892.

[4] Sushkin, List and Distribution of Birds of the Russian Altai, etc., p. 54, 1925.

The adult is of the common type with dark gray dusky-edged rump, which predominates in the central Tian Shan. A series from Narynsk in the Munich Museum is similar. Birds from the Karatau, Ala-tau, and Chatkal-tau have been separated by Sarudny[1] as *C. l. triznae* on account of (nearly plain) brownish rump, but their distinctness has been questioned by Hartert and others. While admitting a certain amount of individual variation, I am not quite convinced that they are really the same, and an average difference may exist after all between western and eastern birds. This question, however, can only be decided by the examination of good series of breeding birds.

This dipper, widely diffused in Siberia and Central Asia, seems to extend south along the western border of the Tarim basin. Sharpe (p. 96) records a worn, apparently breeding specimen taken by the Second Yarkand Mission on May 12, 1874 at Tarbashi, Sarikol, while W. L. Abbott, according to Richmond (p. 586), shot an adult male on June 4, 1894 in the Tagdumbash Pamir. Pleske[2] even refers birds obtained by Przewalski in the foothills of the Russian Range (near Achan) and Keriya Range (near Khotan) to the present form. It was once taken in Gilgit.

Hirundo rustica rustica Linnaeus. Barn Swallow.

Hirundo rustica LINNAEUS, Syst. Nat., 10th ed., 1, p. 191, 1758—Sweden.

CHINESE TURKESTAN: Echitgo (Carshamba Bazar), two ♂♂ juv., July 17; Lailik-ötang, ♂ juv., July 18; Maralbashi, Kashgar River, two ♂♂ juv., July 28; Tumshok (near Maralbashi), two ♀♀ ad., Sept. 24, 1925.

One of the adult birds is a typical *rustica* with complete bluish black jugular band, and indistinguishable from European specimens (wing 117 mm.). The other example, in which the jugular band is broken by rufous in the middle, closely resembles *H. r. gutturalis* on this score; it is, however, decidedly larger (wing 121 mm.) and more tinged with rufescent below, particularly on the under tail coverts. The young birds agree precisely with others from Germany.

The Barn Swallow breeds in great numbers in the plains of the Tarim basin. Both Henderson (p. 176) and Scully (p. 131) met with it all the way from Sanju to Kashgar, and Stoliczka, as recorded by Sharpe (p. 107), found it common around Sarikol and Yarkand. The swallows arrive about the middle of April, breed during May and June, and migrate south late in September or early in October. The European form nests also in Kashmir.

[1]Ornith. Monatsber., 17, p. 180, 1909.

[2]Wiss. Res. Reisen Przewalski, 2, Birds, Part 1, p. 33, 1889.

Upupa epops epops Linnaeus. Hoopoe.

Upupa epops LINNAEUS, Syst. Nat., 10th ed., 1, p. 117, 1758—"habitat in Europae sylvis," restricted type locality Sweden.

CHINESE TURKESTAN: Echitgo, Yarkand River, ♀ ad. (breeding), July 16; Abad (Charshamba Bazar), ♂ imm. July 19; Shamal, ♀ imm., July 22, 1925.

Besides, I have examined a series of ten, including breeding and young birds, from Narynsk, Tian Shan, in the Munich Museum. Turkestan specimens appear to me inseparable from those of Europe, the alleged characters of *U. e. loudoni* being entirely within the range of individual variation, although the percentage of pale-colored examples is perhaps rather greater in the east. In no case, however, do the Hoopoes of the Tarim basin and Tian Shan belong to *U. e. saturata,* if this supposedly darker race of eastern Siberia and Mongolia can be maintained.

The Hoopoe is a common bird in Kashgaria, where it is said to be a permanent resident. Scully (p. 136) met with it in the fields about Kashgar and Yarkand; at the little oases in the desert, between Karghalik and Sanju; in the valley of the Karakash, and even in the barren region near the Karakoram Pass at an elevation of over 18,000 feet. The Second Yarkand Mission, as reported by Sharpe (p. 110), found it breeding near Yarkand, where specimens were obtained as late as in November, while Parrot (p. 263) mentions one secured by Zugmayer on May 21 at Khotan; Richmond (p. 587) records a single adult from Sarikol taken by Abbott in April at an elevation of 10,400 feet, and Severtzow (Ibis, 1883, p. 71) noticed the Hoopoe in August throughout the Pamir, where it probably breeds. Menzbier (Ibis, 1885, p. 357) lists it from near Jangishar (November 22), and Schalow (1901, p. 430) from Kashgar (February 25). For the Tian Shan, the Hoopoe is given by Severtzow (1875, p. 179) as generally distributed; but Almásy (see Smallbones, p. 421) states that it was rare in the section explored by him.

According to Meinertzhagen (Ibis, 1927, p. 603), breeding birds from Baltistan and Ladak (Leh) are referable to *U. e. epops.* The few specimens I have seen from the Vale of Kashmir appear to be intermediate to *U. e. orientalis* Baker.[1]

Coracias garrula semenowi Loudon and Tschusi. Eastern Roller.

Coracias garrulus semenowi LOUDON and TSCHUSI, Ornith. Jahrb., 13, p. 148, 1902—Kaachka, Transcaspia.

[1]Bull. Brit. Orn. Cl., 42, p. 29, 1921—new name for *U. indica* REICHENBACH (not of LATHAM).

KASHMIR: Gund (alt. 7,000 ft.), ♂ ad., May 12, 1925.—Wing 205.

Kashmir birds are on average slightly larger than others from Transcaspia, Turkestan, and Mesopotamia, but agree in coloration.

The Roller is reported to breed in great numbers in the valleys of Kashmir and Peshawar. In Ladak it appears to occur only on migration, and it is also extremely doubtful whether it nests in the plains of Eastern Turkestan. Henderson (p. 177) obtained a single (young) bird in Yarkand, and Scully (p. 133) records two from near Sanju and the Karakash valley, both of which he believed to be on their southward migration.

North of the Tarim basin in the Tian Shan, however, the Roller is well established as a breeding species. Severtzow (1875, p. 180) lists it as occurring sparingly throughout the whole range; while Lönnberg (1905, p. 17) mentions a female secured on May 13, 1902 in the valley of the Baimgol, a tributary of the Tekes River, and Laubmann (p. 34) an adult male taken by Merzbacher's party above Narynsk late in August. 1910.

Dryobates himalayensis albescens Baker. Kashmir Pied Woodpecker.

Dryobates himalayensis albescens BAKER, Bull. Brit. Orn. Cl., **46**, p. 70, 1926, "Goona" [=Gund], Kashmir.

KASHMIR: Baltal (alt. 9,700 ft.), ♀ ad., May 24, 1925.

Examination of the large series in the British Museum shows the Pied Woodpecker of the extreme western Himalayas (Kashmir, Gilgit, and Afghan frontier) to be paler, less washed with fulvous underneath than typical *D. h. himalayensis* from Simla[1] and eastward.

D. h. albescens is common in Kashmir as far east as the Zogi La, but does not cross over the Himalayan Range into Ladak. Sharpe (p. 110) lists it for Murree, Dungagally, Changligally, Urumbu, and Sonamarg; Richmond (p. 495) from Lolab, Vale of Kashmir, Nowboog Valley, and the Pir Panjal Range, Kashmir, as well as from Haramosh, Baltistan; Bates (Journ. Bomb. Nat. Hist. Soc., **29**, p. 801, 1923) from Kashmir generally. Biddulph and Scully (Ibis, 1881, pp. 48, 429) state that it is tolerably common in the pine forests of Gilgit, from 7,000 to 10,000 ft. elevation. In the west it ranges to Chitral and northeastern Afghanistan (Safed Koh; Hariab district).

[1]Birds from Kulu (see Whistler, Journ. Bomb. Nat. Hist. Soc., 31, p. 475, 1926) are probably referable to the typical race. No material is available.

Picoides tridactylus tianschanicus Buturlin. Tian Shan Three-toed Woodpecker.

Picoides tridactylus tianschanicus BUTURLIN, Ornith. Monatsber., 15, pp. 9, 10, 1907—Tian Shan.

CHINESE TURKESTAN, TIAN SHAN: Eidinka, North Musart River, ♂ ad., ♀ ad., Aug. 21, 1925.

This form differs from *P. t. alpinus*, of the Bavarian Alps, by the greater extent of white along the middle line of the back, white-tipped shorter upper tail coverts, and broader black malar stripe.

P. t. tianschanicus is peculiar to the Tian Shan, where it is rather widely distributed throughout the coniferous forests. Severtzow (1875, p. 180) lists it for the northeastern region (Semiretchje, Issik-kul, upper Naryn, Ak-sai, Kopal); Przewalski secured it on the Kunges and Tsang-ma rivers; Almásy, according to Smallbones (p. 421), collected a good series at Ilysky, Narynsk, Kapkak, Naryn-kol, and other localities in the central section; and Merzbacher (see Schalow, 1908, p. 110; Laubmann, p. 33) met with it in the vicinity of the Issik-kul, near Narynsk, as well as in the Musart Valley. The most easterly locality on record appears to be the Bogdo-ola Range, east of Urumchi (Pleske, 1892, p. 134).

Jynx torquilla torquilla Linnaeus. Wryneck.

Jynx torquilla LINNAEUS, Syst. Nat., 10th ed., 1, p. 112, 1758—"Europe," restricted type locality Sweden.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♂ ad., ♀ ad., Aug. 28, 1925.—Wing (male) 90, (female) 86 mm.

These and other specimens from the Tian Shan in the Munich Museum appear to me inseparable from a European series, though it is possible that the markings on the abdomen are on average not quite so decidedly arrow-shaped. The tone of the under parts is just as variable as in typical *torquilla*.

Poljakow described *J. t. harterti* from the Altai, basing the distinction on its smaller size (wing 82.3-84.3 mm.), but this form is obviously not recognized by Sushkin,[1] who indicates *J. t. torquilla* for that region.

The Wryneck has been variously recorded from the Tian Shan. Severtzow (1875, p. 180) mentions it for all his four districts as a breeding bird. Specimens are also listed by Lönnberg (1905, p. 18) from Baimgol; by Schalow (1908, p. 110) from the Issik-kul; and by Laubmann (p. 33) from Narynsk.

[1]List and Distribution of Birds of the Russian Altai, etc., p. 32, 1925.

Cuculus canorus telephonus Heine. Asiatic Cuckoo.

Cuculus telephonus HEINE, Journ. Orn., **11**, p. 352, 1863—Japan.

CHINESE TURKESTAN: Maralbashi, Kashgar River, two ♂♂ ad., one ♀ juv., July 26, 29, 1925.—Wing (males) 220, 225 mm.

Compared with a series from Germany, Roumania, and Mesopotamia (*C. c. canorus*) in Field Museum, the adult males are decidedly paler gray on throat and chest, and the dusky cross bands underneath are much fewer and narrower, becoming evanescent on the lower tail coverts. Specimens from the South Musart River and Narynsk, Tian Shan, in the Munich Museum are similar. Even the young bird is much less barred below than European specimens in corresponding plumage. The series from Turkestan appears to be inseparable from the few Japanese Cuckoos we have been able to compare.

The late N. Sarudny[1] has separated another race, *C. c. subtelphonus*, from "Turkestan," on account of smaller size; but it is not clear from his article whether this supposed form occupies a different breeding range from *C. c. telephonus*, which he also records from Turkestan. At any rate, his measurements are much smaller than those of the Tian Shan and Maralbashi birds, whose wings vary from 218 to 230 mm.

According to Scully (p. 134), the Cuckoo is a summer visitor to the plains of Eastern Turkestan, arriving about the middle of April and leaving again early in August. The Second Yarkand Mission (Sharpe, p. 111) met with it around Yarkand in May, and Parrot (p. 265) records a couple of specimens taken by Zugmayer on May 28 at Khotan, while Merzbacher, as reported by Laubmann (p. 31), secured three birds in the Musart Valley at the southern foot of the Tian Shan.

Surnia ulula tianschanica Smallbones. Tian Shan Hawk Owl.

Surnia ulula tianschanica SMALLBONES, Ornith. Monatsber., **14**, p. 27, 1906—Tian Shan.

CHINESE TURKESTAN, TIAN SHAN: Mointa, Tekes Valley, ♂ ad., Sept. 7, 1925.—Wing 242 mm.

Eight additional specimens from Narynsk and Issik-kul have been examined in the collections at Tring and Munich.

Though not always distinguishable in coloration, this form is decidedly larger than *S. u. ulula* (series from Sweden, Lappland, and

[1]Mess. Ornith., **5**, pp. 108, 115, 1914.

Russia compared), and the ground color of the upper parts, as a rule, is of a deeper, more blackish hue.

S. u. tianschanica is peculiar to the forest region of the Tian Shan.[1] Severtzow (1875, p. 171) found it resident in the central section (upper Naryn and Ak-sai, north to Kopal); Rothschild (p. 162) and Smallbones (p. 421) record it from the Issik-kul; Laubmann (p. 30) from the vicinity of Narynsk. The specimen obtained by our own expedition serves to extend its range into Chinese Turkestan.

Falco subbuteo centralasiae (Buturlin). Central Asian Hobby.

Falco subbuteo cyanescens (not of VIEILLOT, 1823) LONNBERG, Ark. Zool., 2, No. 9, p. 6, 1905—Baimgol, Tian Shan.

Hypotriorchis subbuteo centralasiae BUTURLIN, Mess. Orn., 2, p. 175, 1911—new name for *Falco subbuteo cyanescens* LONNBERG, preoccupied.

CHINESE TURKESTAN: Conishar (six miles n. e. of Ak-su), ♂ ad., Aug. 7; Ox-su, Ox-su River, Tekes Valley, Tian Shan, two ♂ ♂ ad., Aug. 29, 30; near mouth of Mointa River, Tekes Valley, Tian Shan, one ♂, four ♀ ♀ imm., Sept. 8, 9, 1925.

This form having been based on two adult males from Baimgol, a tributary of the Tekes, the Tian Shan specimens in this collection are practically topotypes.

The various races of the Hobby are not strongly differentiated and, in the absence of sufficient series of breeding birds, their ranges cannot be outlined with any degree of accuracy. Compared with a good number of European specimens, the three adults are slightly paler above, particularly on the crown, with more white on the forehead, and have the nuchal patch more whitish, less tinged with buff or ferruginous. The last-named character also holds good in immature birds which, in addition, are not so intensely colored underneath as the corresponding stage of the European Hobby. Size is obviously not a reliable criterion for the Tian Shan race. Our three adult males have wings of 245, 250, and 263; ten from Europe measure from 252 to 262 mm.

The Hobby has been recorded from various parts of the Tian Shan by Severtzow (1875, p. 171), Pleske, Smallbones (p. 423), Schalow (1908, p. 105), and Laubmann (p. 26). According to Scully (p. 119), it breeds, though not in considerable numbers, in the plains of Eastern Turkestan between Yarkand and Sanju. Henderson

[1]The bird from Kossogol, near Kiachta, Transbaicalia (Lönnberg, Ark. Zool., 5, No. 9, p. 28, 1909),quoted by Laubmann (p. 30) in the synonymy of the Tian Shan race, certainly does not belong to *S. u. tianschanica.*

(p. 174) states that it is not uncommon about Yangi Bazar, eight miles from Yarkand, and Sharpe (p. 10) records an adult bird from the same region in his report on the Second Yarkand Mission.

Hobbies from Kashmir, Baltistan, and Ladak, which we have not seen, appear to be unusually large, judging from the figures given by Meinertzhagen (Ibis, 1927, p. 608). He refers them to the East Siberian *F. s. jakutensis*, but this can hardly be correct.

Cerchneis tinnunculus tinnunculus (Linnaeus). Kestrel.

Falco tinnunculus LINNAEUS, Syst. Nat., 10th ed., 1, p. 90, 1758—Europe, restricted type locality Sweden.

LADAK: Bod Kharbu (alt. 10,800 ft.), ♂ imm., May 29; Leh, ♂ ad., June 3, 1925.

CHINESE TURKESTAN, TIAN SHAN: near mouth of Mointa River, Tekes Valley, ♂ ad., ♀ ad., Sept. 2, 10; Shatta, Tekes Valley, two ♀ ♀ ad., Aug. 23; Agijas, Tekes Valley, ♂ imm., Sept. 4, 1925.

Individual variation in the Kestrel is unusually great, hardly two specimens from any one locality being exactly alike.

Birds from the western Himalayas and Tian Shan, of which I have seen an additional series in British collections, appear to be inseparable from the European Kestrel. Oberholser (p. 210) considered Ladak and Kashmir specimens to be distinguishable by their darker upper parts, but referred those from the Tian Shan to the European form, while Lönnberg (1905, p. 5), when comparing four adults from these mountains, noticed certain differences from Swedish examples.

In opposition to Oberholser, I find that the adult male shot on the Mointa River is much the darkest, whereas the Ladak bird is among the palest in the considerable series available for comparison. Both, however, can be matched by various specimens taken in the vicinity of Augsburg, Germany. I am, therefore, led to agree with Rothschild (Nov. Zool., 33, pp. 231-232, 1926) and Meinertzhagen (Ibis, 1927, p. 609) that the kestrels of the western Himalayas and Central Asia are typical *tinnunculus*. At all events, *Falco interstinctus* Mc Clelland[1] is inapplicable, since the type—a winter-taken immature bird—was found by Rothschild (o. c., p. 232) to be referable to *C. t. japonicus*.

[1]Proc. Zool. Soc. Lond., 7, "1839," p. 154, March, 1840—Assam.

Milvus lineatus (J. E. Gray). Black-eared Kite.

Haliaetus lineatus GRAY in Hardwicke, Ill. Ind. Zool., **1**, Part 8, pl. 18, Oct., 1831[1]—China.[2]

LADAK: Pandras, Gumber River (alt. 10,600 ft.), ♀ ad., May 25, 1925.

This is a typical specimen of the Black-eared Kite in adult plumage, distinguished from *M. migrans govinda* Sykes, of the Central Provinces, by larger size, paler under parts, and an extensive white patch at the base of the primaries. It is now an established fact that *M. lineatus* is the only kite breeding in Kashmir and Ladak. Whistler (Journ. Bomb. Nat. Hist. Soc., **28**, p. 1004, 1922) mentions "*M. melanotis*" as breeding near Rampur and Srinagar, and Osmaston (o. c., **32**, p. 142, 1927) calls "*M. migrans lineatus*" the common kite of Kashmir, breeding throughout the main valley and around Srinagar. The same naturalist (Ibis, 1925, p. 707) found it not uncommon around Leh (in May), also saw it in the Indus Valley at Marsalong in June, and met with a pair at the Tso Kar Lake in Rupshu. Meinertzhagen (Ibis, 1927, p. 612) records specimens from Srinagar, Sind Valley, Leh, and other Ladak localities as well as from Skardu, Baltistan. Oberholser (p. 211) lists an adult male, taken by W. L. Abbott in the Valley of Kashmir, on December 4, 1895, as *M. govinda*, but Mr. Riley, who on my request reexamined it, tells me that the bird is unquestionably referable to *M. lineatus*. Certain authors treat the Black-eared Kite as a race of *M. migrans*, but I am rather reluctant to take this course in view of Whistler's observations (Journ. Bomb. Nat. Hist. Soc., **31**, p. 479, 1926) in Kulu, where both *M. m. govinda* and *M. lineatus* appear to breed.[3] In Eastern (Chinese) Turkestan, however, *M. lineatus* is obviously the only representative of the genus. According to Scully (p. 126), it is tolerably common in the plains of Kashgaria, where a nest was found near Yarkand, but occurs also in the hills, specimens having been observed near Ali Mazar and even as high as Shahidulla, on the upper Karakash. Sharpe (p. 8), too, refers the kites obtained by the Second Yarkand Mission in Sarikol and Kashgaria to *M. melanotis lineatus*. The various records of "*M. govinda*" from the Tian Shan[4] also doubtless belong to *M. lineatus* (*melanotis*), and *not* to *M. m.*

[1]See Kinnear, Ibis, 1925, p. 489.

[2]"China" is given as locality on the first page of the "Direction for Arranging the Plates."

[3]Whitehead (Ibis, 1909, p. 260), too, lists both *M. govinda* and *M. melanotis* for Kurram.

[4]Lönnberg (1905, p. 5—Baimgol, Tekes Valley); Smallbones (p. 423—Przewalsk, Bel-Kara-Su); Schalow (1908, p. 106—Birbash); Laubmann (p. 24—Narynsk, Jarkent, Ulato).—Lönnberg's measurements and remarks on the Baimgol bird are rather significative.

govinda which is not known to occur outside of India. According to Menzbier,[1] the Black-eared Kite is found throughout the Tian Shan with the exception of the westernmost ranges (Kara-tau), where it is replaced by *M. m. migrans*. Birds from Ferghana have been separated by Buturlin as *M. melanotis ferghanensis*. The description published in a popular hunting journal in Russian being inaccessible, I am unable to say on what characters it is based, but the name may have to be used for the Himalayan and Turkestan form if it should turn to be different from the typical Chinese bird.

Phalacrocorax carbo sinensis (Shaw and Nodder). Cormorant.

Pelecanus sinensis SHAW and NODDER, Natur. Misc., 13, pl. 529, 1802—China.

CHINESE TURKESTAN: Maralbashi, Kashgar River, ♂ ad., July 26, 1925.—Wing 340 mm.

Agreeing with specimens from India and China. Ticehurst (Ibis, 1923, p. 459) has pointed out that *sinensis* is the earliest name for the southern form of the Cormorant, its range extending from Holland to China and Japan.

According to Scully (p. 204), the Cormorant is a permanent resident in the plains of Kashgaria. He shot the first specimen on the banks of the Yarkand River, near Tarim Langar, and in the beginning of August found these birds quite common at Tungtask, near Karghalik. The Cormorant breeds also in the Tian Shan, whence it has been recorded by Severtzow (1875, p. 185), Lönnberg (1905, p. 2, s. n. *P. c. medius*; Baimgol), and Schalow (1908, p. 79, Koisara).

Columba palumbus casiotis (Bonaparte). Eastern Wood Pigeon.

Palumbus casiotis BONAPARTE, Consp. Av., 2, p. 42, 1854—based on *Palumbus torquatus*, variety ex N. W. Himalayas, BLYTH, Cat. Birds Mus. Asiat. Soc., p. 233, 1849; type locality therefore N. W. Himalaya.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, ♂ ad., ♂ juv., Aug. 26; Agijas, Tekes Valley, ♂ juv., Sept. 3, 1925.

The Eastern Wood-Pigeon is widely diffused in the Tian Shan. Severtzow (1875, p. 180, "*P. pulchricollis*") indicates it as breeding throughout the whole mountain system; Lönnberg (1905, p. 16) records a small series, including a young bird, from Baimgol, a tributary of the Tekes; Laubmann (p. 16) lists a single specimen from the Naryn Valley. It also breeds, as reported by Pleske (1888, p. 45), on the Iskander-kul and other localities in the western

[1]Ornith. Turkestan, 2, Part 2, p. 134, 1889.

spurs of the Tian Shan, while Stolzmann (1897, p. 78) received specimens from the Alai and Ferghana Range. This pigeon is also found in Baluchistan, Afghanistan, and locally in the western Himalayas.

Columba rupestris turkestanica Buturlin. Turkestan Hill Pigeon.

Columba rupestris pallida (not *Columba pallida* LATHAM, 1801) ROTHSCHILD and HARTERT, Ornith. Monatsber., 1, p. 41, 1893—Altai Mountains.

Columba rupestris turkestanica BUTURLIN, Ornith. Monatsber., 16, p. 45, 1908—new name for *C. rupestris pallida* ROTHSCHILD and HARTERT.

LADAK: Panamik, Nubra, two ♂♂ ad., one ♀ ad., June 11, 12, 1925.

No material from the Altai is available for comparison. The Ladak birds agree with a series from Hill Yarkand and Tian Shan.

This pigeon is reported to be common at elevations of from 10,000 to 16,000 feet throughout Ladak, including the Dras and Suru valleys,[1] but does not cross into Kashmir proper. It is also found in Baltistan, Gilgit, Lahul, Kulu, Spiti, and southern Tibet. Scully (p. 176) met with it in Hill Yarkand in the vicinity of Sanju Pass and near Chuchu Pass, and Richmond (p. 587) records specimens from Little Karakul Lake, Sarikol, and from the mountains north of Kashgar. It is also widely diffused in the Tian Shan and ranges north to the Altai.

Columba livia neglecta Hume. Hume's Rock Pigeon.

Columba neglecta HUME, Lahore to Yarkand, p. 272, 1873—"Ladak"; = Wakka River between Paskyum and Shergol, since Hume obviously based his description on the male shot on June 26, 1870 (cfr. Henderson's itinerary on pp. 45-46).

LADAK: Moulbekh (alt. 11,000 ft.), Wakka River, two ♂♂ ad., one ♀ ad., May 29; Lamayuru (alt. 11,500 ft.), two ♂♂ ad., May 30, 1925.

All of these specimens (those from Moulbekh are topotypes) have a distinct rump band, decidedly paler and more whitish than the gray of the mantle. The series is markedly lighter in coloration than *C. l. intermedia* from tropical India. Meinertzhagen (Ibis, 1927, p. 617) states that specimens from Kashmir and Baltistan, of which he collected large numbers, are likewise referable to *C. l. neglecta*, which extends west through Afghanistan and Baluchistan to eastern Persia.

No Rock Pigeon occurs in the plains of the Tarim basin,[2] but it

[1] See Osmaston, Journ. Bomb. Nat. Hist. Soc., 32, p. 144, 1927.

[2] Hartert (Vog. Pal. Fauna, 2, p. 1470, 1920) mentions intergrades between *neglecta* and *intermedia* from "Kashgar," but this must be either a pen slip or an erroneous locality.

reappears in the Tian Shan and Turkestan. Birds from this region have been named *C. l. korejewi* by Sarudny and Loudon[1] on account of their larger size, and the measurements given by these authors certainly exceed those of Ladak birds, whose wings (males) range from 228-235 (against 239-247 mm., in *korejewi*).

Streptopelia turtur arenicola (Hartert). Persian Turtle Dove.

Turtur turtur arenicola HARTERT, Nov. Zool., 1, p. 42, 1894—Fao, Persian Gulf.

CHINESE TURKESTAN: Alager, Yarkand River, ♂ ad., July 21; Shamal, two ♂ ♂ ad., two ♀ ♀ ad., July 22, 1925.

Turkestan birds are perhaps not quite so pale as those from Persia, but the variation is insignificant.

This pale race of the Turtle Dove is a seasonal visitant to the plains of Eastern Turkestan. According to Scully (p. 177), it is not rare around Yarkand, arriving in May and migrating south towards the end of September or early in October. Henderson (p. 278) obtained it at Oi Tograk, south of Karghalik, and the Second Yarkand Mission (see Sharpe, p. 118) at Kashgar, Yarkand, and Karghalik. It is also sparingly found in the valleys of the Tian Shan.

Besides, it is widely distributed in Russian Turkestan and neighboring countries.

Streptopelia orientalis meena (Sykes). North Indian Rufous Turtle Dove.

Columba meena SYKES, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 2, p. 149, Nov., 1832—Dukhun; part, descr. of male.

KASHMIR: Baltal (alt. 9,400 ft.), ♂ ad., May 23, 1925.

CHINESE TURKESTAN, TIAN SHAN: Shatta, Tekes Valley, two ♀ ♀ ad., Aug. 25, 27; Agijas, Tekes Valley, ♀ ad., Sept. 3, 1925.

Birds from Kashmir and Tian Shan are apparently identical. In addition to our own material, I have compared the series in the collection of the Tring Museum.

The North Indian Rufous Turtle Dove inhabits the western Himalayas, Afghanistan, and Turkestan, ranging north to the Altai.

While common in Kashmir, Baltistan and Ladak, it seems to be rather rare in the plains of the Tarim basin. Sharpe (p. 119) records specimens collected by the Second Yarkand Mission at Yarkand and south of Ighiz Yar in May, 1874, under the name of *Turtur pulchratus*. In the Tian Shan, it is more numerous again. Severtzow

[1]Ornith. Monatsber., 14, p. 134, 1906.

(1875, p. 180, *C. gelastes*) lists it as generally distributed in all of his four faunal districts; Pleske (1888, p. 46, *Turtur ferrago*) reports it from Chinaz, Samarkand, and the Chatkal-tau; Lönnberg (1905, p. 15) from Baimgol; Smallbones (p. 424) from Ilysky and the Karakol Valley; Schalow (1908, p. 94) from Kashka-su, near Przewalsk; and Laubmann (p. 17) from the Naryn Valley.

Streptopelia senegalensis ermanni (Bonaparte). Persian Little Brown Dove.

Turtur ermanni BONAPARTE, Compt. Rend. Ac. Sci. Paris, 43, p. 942, 1856—Bokhara.

CHINESE TURKESTAN: Karghalik, ♂ ad., July 9; Kashgar, Kashgar River, two ♂♂ ad., two ♀♀ ad., one ♀ imm., Oct. 5, 6, 9, 1925.

This is not a very strongly marked race, but on comparison with specimens from tropical India those from Turkestan are found to be on average paler and somewhat larger (wing of males 137-143 mm.). Birds from Vyernyi in the Munich Museum are similar to ours.

The range of this dove can only approximately be indicated at present. Eversmann discovered it in Bokhara, and it has since been traced to breed throughout a large section of Turkestan. Severtzow (1875, p. 180, *Streptopeleia aegyptiaca*) lists it for the western and central Tian Shan, stating that in the north it does not extend beyond Aulie-ata; Pleske (1888, p. 46. *Turtur cambayensis*) records it from Chinaz; Schalow (1908, p. 94, *T. senegalensis cambayensis*) from Kashka-su, near Przewalsk; Laubmann (p. 17) from Vyernyi. Stolzmann (1897, p. 78, *Peristera cambayensis*) received numerous examples from Kokand and Marghelan, and Carruthers (Ibis, 1910, p. 471, *T. cambayensis*) found it common near Samarkand. Sharpe (p. 118) records a single bird from Chakmak, n. w. of Kashgar, on the southern slope of the Terek-tau. No records, apparently, exist for the eastern Tian Shan.

According to Ticehurst (Ibis, 1922, p. 466; Journ. Bomb. Nat. Hist. Soc., 32, p. 73, 1927), breeding birds from Sind, lower Punjab, Kandahar, and Baluchistan are undoubtedly referable to *S. s. cambayensis*, and it would thus appear to be rather uncertain whether *S. s. ermanni* breeds anywhere outside of Turkestan.

Streptopelia decaocto stoliczkae (Hume). Turkestan Ring Dove.

Turtur stoliczkae HUME, Stray Feathers, 2, p. 519, 1874—Kashgar; Sharpe, Sci. Res. Sec. Yarkand Miss., Aves, p. 177, pl. 14.

CHINESE TURKESTAN: Echitgo (Carshamba Bazar), Yarkand River, two ♂♂ ad., one ♀ ad., July 16; Kashgar, Kashgar River, ♂ ad., Oct. 5, 1925.

Additional specimens.—British Museum: Sanju, one (unsexed) adult, Nov. 1, 1873. F. Stoliczka; Yarkand, ♂ ad., March 12, 1875. J. Scully; Cherchen Darya, ♀ ad., April, N. M. Przewalski.—U. S. National Museum: Uchturfan, ♂ ad., ♀ imm., Nov. 11, 1893. W. L. Abbott.

I agree with Sharpe (p. 117) and Richmond (p. 588) that the Ring Dove of the Tarim basin should be recognized subspecifically. On comparing the specimens listed above with fifty skins of typical *S. d. decaocto* from Macedonia, Constantinople, and Palestine, I find them to differ by generally paler coloration, longer white tips to the lateral rectrices, and slightly larger size. The white apical portion on the outermost rectrix measures from 50 to 65 mm. in length, being thus considerably more extensive than in European and Indian specimens. One male from Yarkand, however, has no more white in the tail than typical *decaocto*. In Turkestan birds the wing, regardless of sex, ranges from 180 to 186, as against 160-175 in *decaocto*, though a few from Macedonia also have wings of 180 mm. or more. The blackish color at the base of the lateral tail feathers used by Buturlin[1] as a criterion for the Turkestan race is exceedingly variable in extent, and does not seem to afford a reliable character for subspecific differentiation.

S. decaocto stoliczkae is hitherto known only from the Tarim basin. Stoliczka discovered it at Kashgar, and afterwards obtained a specimen at Sanju, near the northern base of the Kuenlun, as recorded by Sharpe (p. 117). According to Scully (p. 178), this dove is one of the commonest birds in the plains, being at least three times more numerous than *S. turtur arenicola*. It is a permanent resident and breeds in Yarkand and Kashgar in April and May. Majev, as reported by Menzbier (p. 357, *Streptopelia torquata*), sent skins from Aksu as well as from the neighborhood of Kashgar; while Richmond (p. 588, *Turtur douraca stoliczkae*) lists two from Uchturfan in the Abbott Collection, and Schalow (1901, p. 410, *T. risorius*) one from Kashgar, remarking on its pale coloration. The British Museum has an adult female secured by N. M. Przewalski on the Cherchen Darya.

Whether this dove ranges into Russian Turkestan, cannot be ascertained owing to lack of material; but it certainly does not cross the mountains south of the Tarim basin, for specimens in the British Museum from Kashmir and Nepal are unquestionably referable to typical *decaocto*.

[1]See Boetticher, Anz. Orn. Ges. Bay., No. 12, p. 134, 1928.

Ibidorhyncha struthersii Vigors. Ibis-bill.

Ibidorhyncha struthersii VIGORS, Proc. Comm. Sci. Corresp. Zool. Soc. Lond., 1, "1831," p. 174, pub. March, 1832—Himalayan Mountains.

KASHMIR: Kangan, Sind Valley, ♀ ad., May 20, 1925.

The Ibis-bill frequents mountain streams and breeds with preference on sandy islands in the river-beds. According to Osmaston (Ibis, 1925, p. 713; Journ. Bomb. Nat. Hist. Soc., **32**, p. 148, 1927), it is not rare on the Sind and Lidar rivers, Kashmir, from 7,000 to 8,000 ft., and again on the Ladak side of the Great Himalayan Range in the Suru Valley at elevations of from 9,000 to 12,000 feet. Ludlow (Journ. Bomb. Nat. Hist. Soc., **27**, p. 146, 1920) met with it on the Maroo River just below Inshin in the Wardwan Valley, Ladak. It has also been found breeding in Kulu, Lahul, Garhwal, southern Tibet, China, and Turkestan.

Capella solitaria (Hodgson). Solitary Snipe.

Gallinago solitaria HODGSON, Gleanings in Science, 3, p. 238, 1831—Nepal.

CHINESE TURKESTAN, TIAN SHAN: Mointa, Tekes Valley, ♂ ad., Sept. 7; Agijas, Tekes Valley, ♀ ad., Sept. 5, 1925.

Variously recorded from the central and northern Tian Shan by Severtzow (1875, p. 181, *Telmatias hyemalis*), Rothschild (p. 162), Smallbones (p. 427), Schalow (1908, p. 89), Gyldenstolpe (1911, p. 25), and Laubmann (p. 13).

Characters and range of this Snipe are fully discussed by Mrs. Meinertzhagen (Ibis, 1926, pp. 498-500).

Gallinula chloropus chloropus (Linnaeus). Moorhen.

Fulica chloropus LINNAEUS, Syst. Nat., 10th ed., 1, p. 152, 1758—Europe, restricted type locality England.

CHINESE TURKESTAN: Maralbashi, Kashgar River, four ♂♂, one ♀ ad., one ♂ juv., five ♀♀ juv., July 25-28, 1925.—Wing of adults (male) 171, 172, 177, 178, (female) 162 mm.

Not different from a good series of European, including some English specimens, although none attaining their maximum measurement.

The Moorhen was found by Scully (p. 192) to be tolerably common in the plains of Eastern Turkestan, where it breeds. He obtained adults and young at Yarkand and Tungtash. It also nests in suitable localities in the Tian Shan.

Fulica atra atra Linnaeus. Coot.

Fulica atra LINNAEUS, Syst. Nat., 10th ed., 1, p. 152, 1758—Europe, restricted type locality Sweden.

CHINESE TURKESTAN: Maralbashi, Kashgar River, three ♂ ♂ ad., one ♀ ad., two ♀ ♀ imm., July 25-28, 1925.

The Coot is, as we are told by Scully (p. 191), exceedingly common in the plains of Kashgaria from March to October. It is found on all lakes and "jheels," and breeds from May to July. The Second Yarkand Mission (Sharpe, p. 145) obtained a specimen south of Sanju Pass late in October, no doubt on its southward migration. The Coot breeds also in the Tian Shan.

Lyrurus tetrix mongolicus (Lönnberg). Tian Shan Blackcock.

Tetrao tetrix mongolicus LONNBERG, Ornith. Monatsber., 12, p. 108, 1904—"Mongolei südlich von der Stadt Urga bei Baimgol ... und bei Chantingrä [sic]"[1] errore; the type locality is the River Baimgol, a tributary of the Tekes, Tian Shan (see Lönnberg, Ark. Zool., 2, No. 9, pp. 10-11, 1905).

CHINESE TURKESTAN, TIAN SHAN: Mointa, Tekes Valley, ♂ ad., Sept. 7, 1925.

This bird, a topotype of *L. t. mongolicus*, corresponds in every respect to the original description, and differs from *L. t. viridanus*, of western Siberia, by decidedly purplish blue (instead of steel blue) gloss on the head and rump and darker brown coloration of the tibial feathering. A series from the vicinity of the Issik-kul and a single male from the Kunges Ala-tau, above Vyernyi, in the Munich Museum are identical.

This well-marked race of the Blackcock is restricted to the coniferous forests of the central Tian Shan,[2] extending northward, according to Sushkin,[3] to the western Altai (Tarbagatai). Severtzow (1875, p. 181) records it from the northeastern district (Ak-sai north to Vyernyi and Kopal); Schalow (1908, p. 97) from the vicinity of the Issik-kul; Smallbones (p. 425, *T. tetrix viridanus*) from Przewalsk, Ortök, and Türgen; Laubmann (p. 21) from the Kunges Ala-tau (above Vyernyi) and Dagit Pass.

[1] = Chantengri, the yet unclimbed highest peak of the Tian Shan.

[2] Hartert's misgivings (Vög. Pal. Fauna, 3, p. 1877, 1921) as to the inclusion of Transbaicalia and northern Mongolia in the range of *L. t. mongolicus* are only too well founded. Hartert was misled by Lönnberg's original type locality, and obviously overlooked the describer's later note in which it was shown to be Tian Shan.

[3] List and Distribution of Birds of the Russian Altai, etc., pp. 18-19, 1925.

Tetraogallus himalayensis himalayensis Gray. Himalayan Snow-cock.

Tetraogallus himalayensis GRAY, Proc. Zool. Soc. Lond., **10**, "1842," p. 105, pub. January, 1843—Himalaya Mountains; Hills north of Simla suggested as type locality by Meinertzhagen (Ibis, 1927, p. 629).

CHINESE TURKESTAN, TIAN SHAN: Mointa River, Tekes Valley (♂) ad., Sept. 7, 1925.

After comparing large series from the Tian Shan and western Himalayas, I find myself in agreement with Bianchi and Hartert that the slight variation of the Turkestan birds is too inconstant to justify their separation.

The Himalayan Snow-cock inhabits the western Himalayas from the Afghan frontier east to Garhwal, and ranges north through the Pamirs[1] to the Tian Shan, Dsungarian Ala-tau, and Tarbagatai. In the Tian Shan it is generally distributed at high elevations from the Chatkal-tau east to the vicinity of Hami.

In the western Kuenlun, from Tochtachon eastward, it is replaced by a paler form with the chestnut stripes on the hind neck not joining one another in the middle. This has been named *T. h. grombczewskii* by Bianchi.

Alectoris graeca chukar (J. E. Gray). Chukar Partridge.

Perdix Chukar J. E. GRAY in Hardwicke, Ill. Ind. Zool., **1**, Part 2, pl. 54, pub., March, 1830[2]—India; type locality Srinagar, Kumaon.[3]

LADAK: Pandras (alt. 10,600 ft.), Gumber River, ♂ ad., May 25, 1925.

This bird as well as others from Dras in Col. Meinertzhagen's collection are precisely similar to specimens from Kashmir (Srinagar; Kangan; Woolar Lake; Traal) which, in their turn, cannot be distinguished from a large series of typical *chukar*, comprising skins from Nepal (two), Kumaon (Bhagirati Valley, one), Simla Hills (many), Kulu (four), and Rohtang (one). Certain specimens from central Kashmir are perhaps slightly darker above than the general run from more eastern localities, but the majority cannot be separated. Birds from the vicinity of Dras are, as pointed out by Meinertzhagen (Ibis, 1927, p. 630), typical *chukar*, which is thus

[1]An adult male from the Tagdumbash Pamir examined in the U. S. National Museum.

[2]See Kinnear, Ibis, 1925, p. 489.

[3]Latham (Gen. Hist. Birds, 8, pp. 295-296, 1823), who had access to Hardwicke's drawings and manuscript notes, states that the Chukar Partridge is a "native of the Mountains of Sirinagur and other parts of India, also at Futtehguhr," and as we know that Hardwicke made an expedition to Srinagar in Kumaon (see Kinnear, Ibis, 1925, p. 486), we may accept this place as the type locality.

seen to filter into extreme western Ladak. Farther east, around Kargil and in the Wakka Valley, it gradually passes into *A. g. pallescens*, the form found east of the Namika La and ranging throughout eastern and northern Ladak.

Alectoris graeca pallescens (Hume). Northern Chukar Partridge.

Caccabis pallescens HUME in Henderson and Hume, Lahore to Yarkand, p. 283, 1873—"Karbu, Ladak" = Bod Kharbu (type in British Museum examined).

LADAK: Lamayuru (alt. 11,500 ft.), ♂ ad., May 30; Khalsar (alt. 11,000 ft.), Nubra, ♂ ad., June 9; Taghar (alt. 10,300 ft.), Nubra, two ♂♂ ad., June 9; Panamik, Nubra, ♂ ad., ♀ ad., June 12, 1925.

Additional specimens.—U. S. National Museum: Rondu (alt. 6,000 ft.), Baltistan, ♂ ad., Feb. 4, 1892. W. L. Abbott; Leh (alt. 11,000 ft.), Ladak, ♂ ad., July 1, 1893; above Tikse (alt. 14,000 ft.), near Leh, Ladak, ♀ ad., Aug. 20, 1893. W. L. Abbott.—British Museum: Bod Kharbu, Ladak, ♂ ad., June 26, 1870. George Henderson (type of *C. pallescens*); Lamayuru, Ladak, adult, Aug. 23, 1873. F. Stoliczka; Leh, Ladak, adult, Sept. 4, 1873. F. Stoliczka; Nubra Valley, ♂ ad., June 26, 1874. J. Biddulph; Gilgit (alt. 5,000 ft.), ♂ ad., Aug., 1876. J. Biddulph; Boonji (alt. 5,000 ft.), s. e. of Gilgit, ♀ ad., Jan. 19, 1879. J. Biddulph; Bas Robat, the Pamir [=Wakhan Valley, Little Pamir], ♂ ad., May 12, 1874. J. Biddulph; Ak Mujid [Pamir], ♀ ad., June 2, 1874. J. Biddulph.—Munich Museum: Tankse, Ladak, ♂ ad., Sept. 25, 1906;[1] Chemdeh, Ladak, ♂ imm., Sept. 28, 1906.[1] E. Zugmayer.

In fresh fall plumage, this form may be distinguished from *A. g. chukar* by decidedly paler dorsal surface, the back being grayish drab (instead of nearly sepia brown) with the anterior portion light cinnamon drab rather than brownish drab, while the rump and tail coverts are more grayish, less tinged with olivaceous (deep olive gray instead of deep grayish olive).

The racial characters are even more pronounced in worn breeding examples, when compared with *chukar* in corresponding plumage.

The type of *C. pallescens*, taken at Bod Kharbu on June 26, agrees in every particular with one of the males from Taghar, Nubra (June 9), and summer specimens from Gilgit and the Pamir are exactly like those from the Indus and Nubra valleys. The two only examples in good plumage, an adult female from Boonji, Gilgit (January) and a male from Rondu, Baltistan (February), are not distinguishable from an adult from Tankse, Ladak (September 25), so far as I can see. In coloration of upper parts they are just intermediate between *chukar* and *pallida*, being paler and more olivaceous than *chukar*, but darker and less rufescent than *pallida*. While cer-

[1] *Caccabis saxatilis pallescens* PARROT, p. 243, Nos. 896, 909.

tain examples of *pallescens*, taken late in July or August, closely resemble the latter, yet comparison of a series tends to show that the two forms are not the same and should be kept separate.

The range of *A. g. pallescens* appears to be rather restricted. It stretches from the southern Pamir (Ak Mujid; Bas Robat, Wakhan)[1] through Gilgit and Baltistan to Ladak as far east as Tankse, north to the Shyok and Nubra valleys, but does not include the extreme west beyond the Namika La, this section of Ladak being tenanted by *A. g. chukar*.

Alectoris graeca pallida (Hume). Pale Chukar Partridge.

Caccabis pallidus HUME in Henderson and Hume, Lahore to Yarkand, p. 284, 1873—"Yarkand" = Karakash River, Hill Yarkand (type in British Museum examined).

CHINESE TURKESTAN: Tam Karaul (alt. 10,000 ft.), Sanju River, Hill Yarkand, three ♀ ♀ ad., July 3; Kisil Bulok, South Musart River, south foot of Tian Shan, two ♀ ♀ ad., Aug. 13, two ♂ ♂ ad., two ♀ ♀ ad., Sept. 16; Shurbulak Pass (west of Kashgar), ♂ ad., Nov. 2, 1925.

Additional specimens.—British Museum: Karakash, Hill Yarkand, ♀ ad., Aug. 7, 1870. Geo. Henderson (type of *C. pallidus*); Kiwaz, Sanju River, adult, Oct. 26, 1873. Col. Gordon; Chahil Gombaz, Sarikol, adult, March 25, 1874. F. Stoliczka; "Yarkand," ♂ ad., March 13, 1875. J. Scully; "Yarkand," adult (in fresh fall plumage), no date, J. Biddulph.—Coll. Meinertzhagen: "Maralbashi," ♂ ad., May 25, 1908 (authentic specimen of *A. c. fallax* SUSHKIN, received from the describer). —Munich Museum: Polu, Keriya Range, ♂ ad., June 15, 1906. E. Zugmayer.[2]

Although not admitted by Hartert,[3] the Chukar Partridge inhabiting the hills of Eastern Turkestan obviously deserves recognition. Compared with *A. g. pallescens* in corresponding plumage, breeding birds from Hill Yarkand are above conspicuously paler, more sandy, with the rump and tail coverts decidedly olivaceous (less grayish), while the black bars on the flanks are rather narrower. The three specimens from Tam Karaul in our collection agree perfectly with the type and Zugmayer's bird from Polu. Examples in fresh fall plumage also differ from *pallescens* in being much paler above, more sandy (less grayish), and in lacking the grayish uropygial area. The rump and upper tail coverts are sandy drab, of the same

[1]As correctly stated by Sharpe (p. 121), the bird from Jungalik, Sarikol, April 27, 1874, obtained by F. Stoliczka of the Second Yarkand Mission is not *pallidus*. On careful examination it proves to be a typical specimen of *A. g. pallescens*, agreeing particularly well with one of our males from Taghar, Nubra. It may have been a straggler.

[2]*Caccabis saxatilis pallescens* PARROT, p. 243, No. 400.

[3]Nov. Zool., 24, p. 280, 1917; Vög. Pal. Fauna, 3, p. 1908, 1921.

color but lighter than the mantle, whereas in *A. g. pallescens* they are deep olive gray, conspicuously contrasted with the color of the upper back.

A single adult from Chahil Gombaz, Sarikol, and two from "Yarkand" belong likewise to *A. g. pallida*, while the bird from Shurbulak Pass (west of Kashgar) is just a slight shade darker, not quite so sandy above.

The late P. P. Sushkin[1] referred the Chukar Partridges found along the southern slopes of the Tian Shan from the Kuruk-tagh west to Uchturfan to a new form, *A. chukar fallax*.[2] Our series from Kisil Bulok is thus representative of this race. While admitting that the September birds (in freshly molted plumage), by slightly darker upper parts, exhibit a certain tendency in the direction of the still darker *A. g. falki* Hartert (of the central Tian Shan), the variation appears to me too insignificant to warrant the recognition of another local form. Moreover, the two females in worn plumage (August) are indistinguishable from those taken at Tam Karaul, near the type locality of *C. pallidus*.

For the present I am, therefore, inclined to unite the Chukar Partridges of Eastern Turkestan in a single form under Hume's name *pallida*.

A. g. pallida, according to Scully (p. 182), is abundant in all the hills which surround the plains of the Tarim basin on the north, west, and south. In winter the birds seem to come down to lower elevations than they frequent in summer; numbers of partridges are then caught and brought into Yarkand and Kashgar for sale. The specimens labeled "Yarkand" and "Maralbashi" in the collections of the British Museum and Col. Meinertzhagen are no doubt of this origin.

In the southern hills, Henderson found it on the Karakash, while the Second Yarkand Mission (Sharpe, p. 121) obtained specimens at Kiwaz, Sanju River, and south of Kugiar. Zugmayer met with it at Polu, Keriya Range, and, according to Sushkin, its range stretches throughout the Altyn-tagh east to the Humboldt Range. In the western mountains, the Second Yarkand Mission secured a specimen at Chahil Gombaz, Sarikol, and farther north at Chakmak,

[1]Bull. Brit. Orn. Cl., 48, p. 23, 1927—Kuruk-tagh, east of Bagrash-kul.

[2]Sushkin compares it merely with *A. g. falki*, and does not state how it differs from *A. g. pallida*. His remarks on the characters of the latter form (op. cit., p. 24) are particularly applicable to the worn plumage. Needless to say, I cannot agree with Sushkin in separating *A. chukar* and allies specifically from *A. graeca*.

in the southern foothills of the Tian Shan. In the same district, George K. Cherrie shot one on the Shurbulak Pass, west of Kashgar. Thence this Partridge ranges along the south slope of the mountains as far as the Kuruk-tagh, east of the Bagrash-kul.

Alectoris graeca falki Hartert. Falk's Chukar Partridge.

Alectoris graeca falki HARTERT, Nov. Zool., 24, p. 280, 1917—near Przewalsk, east of Issik-kul, Tian Shan (type in Tring Museum examined).

CHINESE TURKESTAN, TIAN SHAN: Agijas, Tekes Valley, one ♂ juv., two ♀ ♀ juv., Sept. 3; Shatta, Tekes Valley, two ♂ ♂ juv., one ♀ juv., Aug. 26, Sept. 13, 1925.

Some of these specimens are in sufficiently advanced plumage to show that they are referable to *A. g. falki*, of which a large series (of nearly forty skins) has been examined from Narynsk and the Issik-kul region.

This form may be distinguished from *A. g. pallida* by its darker, anteriorly less reddish upper parts and deeper gray breast.

Its range comprises the greater part of the central and western Tian Shan, and stretches west into Buchara and Transcaspia.

Phasianus colchicus shawii Elliot. Shaw's Pheasant.

Phasianus shawii ELLIOT, Proc. Zool. Soc. Lond., 1870, p. 403—Yarkand.

CHINESE TURKESTAN: Kashgar, Kashgar River, ♂ ad., Oct. 14; Conishar (six miles n. e. of Aksu), ♀ juv., Aug. 8, 1925.

The adult male is a typical example of *shawii*, with grayish white upper wing coverts, chestnut rump and tail coverts, and without trace of a white neck band, and agrees with specimens from Yarkand in the British Museum. There is the usual amount of variation in the extent of the green edges to the pectoral feathers as well as in the metallic gloss on the head and neck, but as has been demonstrated by Scully (Stray Feathers, 3, pp. 433-436, 1875), this is purely individual, and Elliot was doubtless mistaken in attributing the slight differences to the existence of two species, *P. shawii* and *P. insignis*, around Yarkand. Birds from Maralbashi, described by Lorenz[1] as *P. shawi chrysomeloides*, appear to me inseparable from those taken near Yarkand and Kashgar.

This pheasant is restricted to the plains of western Chinese Turkestan, and evidently does not range much beyond the Aksu

[1]Ornith. Monatsber., 17, p. 171, 1909—"Maral-Basch," Kashgar Darya.

River and Khotan Darya in the east.[1] According to Scully (p. 179), it is common among long grass jungle and reeds growing in waste ground between Yarkand and Kashgar. Biddulph (in Sharpe, p. 120) met with it in the same district and on the road from Kashgar to Maralbashi, and states that it occurs as far north as Aksu, but is not found west of the Sanju-Kashgar road. Richmond (p. 588) records specimens taken by W. L. Abbott at the junction of the Aksu and Kashgar rivers, at Kokchall (east of Maralbashi), and in the jungles on the Kashgar River, 100 miles below Maralbashi; and Seebohm (Proc. Zool. Soc. Lond., 1888, p. 415) tells us that Gen. Przewalski obtained examples of *P. c. shawii* in the valleys of the Aksu River and Khotan Darya near their confluence with the middle stream of the Tarim.

Farther east in the Tarim basin, from Karashar on the Bagrash-kul south to Lob Nor and the lower Cherchen Darya, this Pheasant is represented by *P. c. tarimensis* Pleske, easily recognizable by yellowish (buffy) brown upper wing coverts, lighter mantle, and by having the lower back and rump barred with green and buff.

Separated from both of these races by the snow-clad Chalyk-tau, we find in the Tekes and Kunges valleys another form, *P. c. mongolicus*, recognizable among other features by possessing a distinct white band around the neck. Of this, the expedition secured two ♂♂ juv. and two ♀♀ in the Tekes Valley, at the mouth of the Mointa River, on September 10th, 1925.

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THE LAND MAMMALS OF URUGUAY

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The object of this paper is to bring together in workable reference form all the known records of mammals from Uruguay and to report on the collection made by the Captain Marshall Field Expedition during its four month's stay in Uruguay in 1926 and 1927. No complete zoological survey has ever been made in Uruguay. The Captain Marshall Field Expedition intended to make one but was able to cover only the southern half of the country. All work done previously has been mainly local.

The first record of any mammal from Uruguay dates back to the capture of a bat (*Lasiurus borealis bonariensis*) by one of the officers of the "Coquille" in November, 1822. The first mammal collector to work there was H. Sello who collected near Maldonado in December, 1826 and January, 1827. His work resulted in the discovery of three new species which were described by Lichtenstein. Five years later, during the voyage of the "Beagle", Charles Darwin spent some time about Maldonado and Montevideo, and his collecting resulted in the discovery of a number of new species of mammals. Burmeister visited Uruguay in 1857 and 1858, mainly along the Uruguay River. He records the occurrence of certain species of mammals but does not mention the capture of many. His published papers relate mainly to the mammals of the La Plata region and Argentina.

In 1890, Oldfield Thomas collected at Colon, near Montevideo, but, aside from scattered mention of specimens, he published nothing on his collections. Senor E. Budin, collecting for Thomas in 1924, stopped near Mercedes, but nothing has been published on his Uruguayan collection, which was probably not very large. For nine months, during 1892 and 1893, O. V. Aplin collected birds in the departments of Soriano and Rio Negro for Dr. Sclater. He took but few mammals although he records twenty-five species. Senor Juan Tremoleras of Montevideo has collected a few specimens near his city but has done no extensive work.

The Captain Marshall Field Brazilian Expedition spent four months, from October, 1926 to February, 1927, in the southern part of Uruguay. The expedition covered about two thousand miles by automobile truck, passing through eight departments and collecting at twelve places. The total number of mammals collected was 345, embracing thirty species. Besides these, 462 birds, 787 reptiles and amphibians, and 4,000 fish were collected. Although the northern half of the country is less thickly inhabited and probably more interesting zoologically, the southern half was visited first to secure topotypical material. It had been planned to cover the whole of Uruguay, but circumstances prevented. It is hoped that the work may be continued later in the northern part of the country, which has as yet been untouched by mammal collectors.

I wish to take this opportunity to thank my various hosts for their kind hospitality and to thank the Uruguayan national officials and the many local police chiefs for their interest and help. Especial thanks are due Mr. Enrique Estrazulas for his help and Mr. H. J. Doyle, of Armour and Company, who provided letters of introduction to many of his clients.

A brief description of localities follows:

Fifteen kilometers north of San Carlos, Department Maldonado. Oct. 19-23, 1926. This region was open, rolling pasture land, dotted here and there with Ombu trees or patches of thorny brush, and with small swamps in the low places between the hills. The small streams were narrowly fringed with brushy woods. Work was carried on at the Estancia San Carlos, owned by Senor Nicolas Alverez. Only a brief stay was made here as house rats were the most numerous mammals.

Maldonado, Department Maldonado. Oct. 23-Nov. 2. Trapping was done along the beach, just outside the town of Maldonado. Large sand dunes were the common formation here but were cut by small streams and patches of swamp which drained the country behind them. The dunes have been planted with maritime pines by Dr. Enrique Burnett, who by this means saved the town from being buried in sand. Dr. Burnett allowed the party the use of his beach cottage during their stay.

Arroyo Garzon, Department Rocha. Nov. 2-5. This part of the country consisted of a range of high, rocky hills given over to sheep raising. The streams were bordered by groves of small trees and patches of swamp occurred here and there. The pasture was eaten

down very close and the ground under the trees was bare. Rodents were very scarce, but one being taken.

Fifteen miles north of San Vicente de Castillos, Department Rocha. Nov. 8-17. Like the Arroyo Garzon, this locality was rocky, hilly, sheep country, but there was a little more level land with large forests of palm trees on the lower ground. Ten miles to the north the country began to open out into more level pampas. While some of the larger mammals were taken here, 8,000 sheep leave little cover for small rodents.

Passo de las Avarias, Rio Cebollati, Department Minas. Nov. 20-24. The Cebollati at this point was bordered by a narrow strip of fairly heavy woods about one hundred yards wide. Beyond the woods were wheat fields and sheep pasture. The water rat (*Holochilus*) was first met with here, but mice were scarce.

Eight miles east of Treinta y Tres, Department Treinta y Tres. Nov. 25-Dec. 4. This locality, the Estancia Jeffries, was made up of gently rolling hills given over to sheep and cattle raising. It was cut by numerous streams and swamps, but woods, aside from eucalyptus groves, were practically absent. As on other sheep ranches, mice were scarce.

Quebrada de los Cuervos, 45 kilometers north of Treinta y Tres, Department Treinta y Tres. Dec. 4-12. The Quebrada de los Cuervos lay in a high, hilly, and rocky country with fair pasture and many small swamps and streams. The Quebrada itself was a narrow canyon between the hills, about three hundred feet deep, and a mile or a mile and a half long. The sides, which were covered by small trees, brush, and palms, were very steep and there were only two places where a descent could be made safely. This class of terrain and its fauna gave an idea of what might be expected in the more northern and hilly departments.

Arroyo Polanco, Department Minas. Dec. 13-19. There were many wheat fields here among the sheep pastures where mice and cavies were plentiful in the grain shocks. The grain fields are the only places in Uruguay where any satisfactory trapping can be done. The Arroyo itself was a small stream bordered by willows and other trees. This was as far inland as Darwin travelled during his work in Uruguay.

Minas, Department Minas. Dec. 19-23. A short stop was made at Minas to visit the Gruta de Arrequita or Gruta Colon, which lay

in a large, rocky mesa, a few miles outside the town. The Gruta was a large cave in which there were many bats.

Arazati, Department San Jose. Jan. 7-12, 1927. Arazati, which lay south of the town of Santa Echida, was but a waste of low, brush-covered, sand dunes on the edge of the La Plata River. These were cut by swamps and streams which rose when the tide came in. Mice were fairly common, but house rats more so.

Ten kilometers south of La Lata, Department Colonia. Jan. 14-18. This locality was in another region of rolling wheat fields and sheep pasture.

Fifteen miles southwest of Dolores, Department Soriano. Jan. 18-31. Two camps were made here, one on the edge of a wheat field and the other in the heavy, brushy woods on the banks of the Uruguay River. This locality is the Estancia Concordia, a large tract of land owned by an English company.

Passo Correntino, Rio Negro, Department Rio Negro. Feb. 4-8. This part of the Rio Negro, which had a thin strip of woods along its banks, ran through grazing land and wheat fields.

Didelphis paraguayensis Oken.

Didelphis paraguayensis OKEN, Lehrbuch d. Naturgesch., 3, Zool., pp. 1147-1148, 1816.

This opossum was found to be fairly common for a medium-sized animal. Four were shot in one night while we were hunting with a head lamp. A large female contained twelve young, and a younger female four very small young, in the pouches.

Specimens taken.—Total 7: Maldonado 1; Quebrada de los Cuervos, Dept. Treinta y Tres 1 (skull only); 10 miles south of La Lata, Dept. Colonia 4; 15 miles southwest of Dolores, Dept. Soriano 1.

Other records.—*Didelphys azarae* Waterhouse, 1839, p. 93; Burmeister, 1861, p. 412; Aplin, 1894, p. 314; Figueira, 1894, p. 8.

Monodelphis dimidiata (Wagner).

Didelphys dimidiata WAGNER, Abhandl. math-phys. Cl. K. Bayer. Akad. Wiss., Munchen, V., Iste Abth., p. 151, footnote, 1847.

One specimen was seen in the Museo Nacional de Montevideo, taken in Montevideo. Darwin says that his example was caught by some boys digging in a garden.

Other records.—*Didelphys brachyura* Waterhouse, 1839, p. 97, pl. 32; *Didelphys brevicaudata* Figueira, 1894, p. 1.

Lutreolina crassicaudata paranalis Thomas.

Lutreolina crassicaudata paranalis THOMAS, Ann. and Mag. Nat. Hist, (9), 11. p. 584, 1923. Type from Las Rosas, Prov. Sante Fe, Argentina.

The only one seen was found dead in the road near Colonia Suiza, in January, 1927. It was too badly crushed to save but according to Thomas's geographic divisions, should be this subspecies.

Other records.—Didelphis crassicaudata Aplin, 1894, p. 315; Figueira, 1894, p. 2 (either this or the next subspecies).

Lutreolina crassicaudata lutrilla Thomas.

Lutreolina crassicaudata lutrilla THOMAS, Ann. and Mag. Nat. Hist., (9), 11, p. 585, 1923.

Two young ones were caught in rat traps baited with meat, placed on a bank along a small stream. After the first one was taken, steel traps were set but no adults were caught.

Specimens taken.—Total 2: Arroyo Polanco, Dept. Minas.

Other records.—Didelphis crassicaudata Waterhouse, 1839, p. 94, pl. 30, pl. 34, (skull) fig. 25.

Sturnira lilium (Geoffroy).

Phyllostoma lilium GEOFFROY, Ann. Mus. d'Hist. Nat. Paris, 15, p. 181, 1810.

The only mention of this bat from Uruguay is by Figueira who says, "Is common in all the Republic." He had no specimens in the National Museum, however.

Myotis chiloensis alter Miller and Allen.

Myotis chiloensis alter MILLER AND ALLEN, U. S. Nat. Mus. Bull. No. 144, p. 194, 1928.

Many specimens of this bat were taken in the Gruta de Arrequita, near the town of Minas. It was said that disturbances, caused by the removal of guano and the many visitors that came to the cave had driven most of the bats away, but there were still some hundreds left there. Figueira states that *Plecotus velatus* is very common in the cave, but whether it has been driven out and its place taken by *Myotis* or whether it is a misidentification, is uncertain.

Specimens taken.—Total 43: Gruta de Arrequita, Dept. Minas.

Myotis chiloensis dinellii Thomas.

Myotis dinellii THOMAS, Ann. and Mag. Nat. Hist., (7), 10, p. 493, 1902.

Miller and Allen (1928, p. 192.) mention one specimen from Dept. Soriano and four others with no exact locality.

Myotis ruber (E. Geoffroy).

Vesp (ertilio) ruber E. GEOFFROY, Ann. Mus. d'Hist. Nat., Paris, 8, p. 204, 1806.

Myotis albescens (E. Geoffroy).

Vesp (ertilio) albescens E. GEOFFROY, Ann. Mus. d'Hist. Nat. Paris, 8, p. 204, 1806.

While there are no specimens of either of these bats from Uruguay, both have been taken in Rio Grande do Sul, Brazil, and *M. albescens* in Buenos Aires, Argentina, on which grounds they are included in this list. In the course of future collecting they will undoubtedly be found to occur in Uruguay.

Myotis pilosus (Peters).

Vespertilio (Leuconoe) pilosus PETERS, Monatsber. K. Akad. Wiss. Berlin, p. 403, 1869.

Only the type of this species is known and there appears to be some doubt as to its having come from Montevideo. (See Miller and Allen, 1928, p. 209).

Histiotus velatus (Is. Geoffroy).

Plecotus velatus Is. GEOFFROY, Ann. Sci. Nat., p. 446, 1824.

Figueira reported this bat as common in the Gruta de Arrequita. (See *Myotis c. alter*).

Histiotus montanus (Philippi).

Vespertilio montanus PHILIPPI, Wiegm. Archiv., p. 289, 1861.

Aplin's specimen is apparently the only record for this species in Uruguay. (See Thomas, 1916, p. 274).

Lasiurus borealis bonariensis Less. and Garnot.

Vespertilio bonariensis LESS. AND GARNOT, Voyage autor du Monde, 1, p. 137; Atlas, pl. ii, fig. 1, 1827.

Figueira's record appears to be the only recent one for Uruguay (1894, p. 26). Thomas records it from Paraguay (1901, p. 435). I secured two specimens from Senor Juan Heider of Misiones, Argentina, who took them near his home at Monte Carlo on the Parana River.

Tadarida brasiliensis (Is. Geoffroy).

Nyctinomus brasiliensis Is. GEOFFROY. Ann. des Sci. Nat., p. 343, 1824.

One of the commonest bats in Uruguay. Large colonies were found in the attic of the police station in Maldonado and in an old building in Rocha.

Figueira (1894, p. 28) lists *Nyctinomus macrotis nevadensis* Allen, but he had no specimens and gives no authority for the record. He says, "This species is found in all the country, especially in the departments of the north." If there is any basis for this record, it might refer to *Tadarida gracilis*.

Specimens taken.—Total 32: Maldonado 28; Rocha, Dept. Rocha 2; Arroyo Polanco, Dept. Minas 2.

Other Records.—*Dysopes nasutus* Waterhouse, 1839, p. 6; *Dysopes naso* Burmeister, 1861, p. 392; *Nyctinomus brasiliensis* Figueira, 1894, p. 27.

Molossus currentium Thomas.

Molossus obscurus currentium THOMAS, Ann. and Mag. Nat. Hist., (7), 8, p. 438, 1901.—Type from Goya, Corrientes, Argentina.

One specimen was taken eight miles east of the town of Treinta y Tres. This is the first record for Uruguay.

Eumops bonariensis (Peters).

Promops bonariensis PETERS, Monatsb. Akad. Wiss. Berlin, p. 232, 1874. Type from Buenos Aires, Argentina.

The specimen secured was caught with the preceding in one of the buildings on a ranch in Treinta y Tres. Curiously enough, this seems to be the first record for this species in Uruguay, although it has been known from Buenos Aires for over fifty years.

Procyon cancrivorus nigripes Mivart.

Procyon cancrivorus nigripes MIVART, Proc. Zool. Soc. London, p. 347, 1885. Type from southeastern Brazil.

This animal was said to be rather scarce but it may be more common in the northern departments. Skins were seen at Rocha and the Quebrada de los Cuervos. The specimen secured was killed by a dog early in the morning.

Specimens taken.—Passo de las Avarias, Rio Cebollati, Dept. Minas 1.

Other records.—*Procyon cancrivorus* Aplin, 1894, p. 302; Figueira, 1894, p. 22.

Nasua sp.

Said by Figueira to be found in the northern departments. A man at the Quebrada de los Cuervos described a ring-tailed animal to me that had been killed there, which may have been a Coati.

Record.—*Nasua narica* Figueira, 1894, p. 21.

Lutra platensis Waterhouse.

Lutra platensis WATERHOUSE, Zool. Voyage Beagle, pt. 2, Mammalia, p. 21, pl. 35, fig. 4 (skull), 1838.

No otters were seen or reported during the work in Uruguay.

Record.—*Lutra paranensis* Figueira, 1894, p. 23.

Pteronura brasiliensis (Zimmerman).

Lutra brasiliensis ZIMMERMAN, Spec. Zool. Geog., p. 485, 1777.

Record.—*Lutra brasiliensis* Aplin, 1894, p. 301.

Tayra barbara subsp.

Burmeister (1861, p. 409) gives the only record for this animal in Uruguay.

Grisonella huronax Thomas.

Grisonella huronax THOMAS, Ann. and Mag. Nat. Hist., (9), 8, p. 213, 1921. Type from Mar del Plata, Prov. Buenos Aires, Argentina.

Two specimens were purchased in the department of Soriano. One was killed near Rocha a few days before I reached there but the body could not be found.

Specimens taken.—Total 2: 15 miles southwest of Dolores, Dept. Soriano (1 skin only and 1 skull only).

Other records.—*Galictis vittata* Waterhouse, 1838, p. 21; Aplin, 1894, p. 306; Figueira, 1894, p. 23.

Conepatus feuilleii (Eydoux and Souleyet).

Mephitis feuilleii EYDOUX AND SOULEYET, Zool. Voyage of the Bonite, 1, pp. 10-14, pl. 3, figs. 1-3, 1841. Type from near Montevideo.

The skunk is one of the commonest of the larger mammals in Uruguay.

Specimens taken.—Total 23: San Carlos, Dept. Maldonado 1; 15 miles north of San Vicente de Castillos, Dept. Rocha 3; Quebrada de los Cuervos, Dept. Treinta y Tres 7; 10 kilometers south of La

Lata, Dept. Colonia 5; 15 miles southwest of Dolores, Dept. Soriano 6; Passo Correntino, Dept. Rio Negro 1.

Other records.—Mephitis suffocans Figueira, 1894, p. 22; *Conepatus mapurito monzoni* Aplin, 1894, p. 302.

Pseudalopex culpaeola Thomas.

Pseudalopex culpaeola THOMAS, Ann. and Mag. Nat. Hist., (8), 13, p. 359, 1914. Type from Santa Elena, Dept. Soriano, Uruguay.

Foxes were not very common, no doubt on account of the packs of dogs kept at the ranches. Two specimens taken at Passo Correntino, Rio Negro, are practically topotypes and as only the measurements of the type have been published those for these two skulls are listed below. Two skulls picked up at the Quebrada de los Cuervos have been referred to this species though they are a little smaller.

Measurements.—Condylo-basilar length 141.8, ——; basilar length 131.1, ——; zygomatic breadth 73.8, 77.3; interorbital constriction 24.6, 25.8; braincase 47.3, ——; palatal length 74.2, 73.9; nasals 58.7, 56.5; fourth upper premolar 13.7, 12.3; third and fourth upper molars 17, 15.5.

Specimens taken.—Total 4: Passo Correntino, Dept. Rio Negro 2; Quebrada de los Cuervos, Dept. Treinta y Tres 2 (skulls only).

Other records.—Canis azarae Burmeister, 1861, p. 405; Aplin, 1894, p. 298; Figueira, 1894, p. 23.

Lycalopex entrerianus (Burmeister).

Canis entrerianus BURMEISTER, Reise durch die La Plata Staaten, 2, p. 400, 1861.

Four skins, said to have been taken in the department of Rocha, and an odd skull from the Quebrada de los Cuervos, have been referred to this species until more material for comparison can be obtained.

Other records.—Canis sp. Aplin, 1894, p. 299 (see Thomas, 1914, p. 359, footnote).

Chrysocyon brachyurus (Illiger).

Agouara-gouazou AZARA, Quad. Paraguay, 1, p. 307, 1801.
Canis brachyurus ILLIGER, Abhandl. K. Akad. Wiss. Berlin (1811), pp. 109, 121, 1815.

The only mention of this animal is by Figueira (1894, p. 24) who says that it may be found in the northern and eastern departments.

Felis geoffroyi D'Orbigny and Gervais.

Felis geoffroyi D'ORBIGNY AND GERVAIS, Bull. Soc. Philom, Paris, pp. 40-41 (seance 6 Mai), 1844; atlas, Voy. Amer. Merid., 9, pl. 13, fig. 1, pl. 14, 1844.

Apparently this is the only species of cat which still exists in any numbers in Uruguay. A skin and skull were purchased in the department of Soriano and an odd skull at the Quebrada de los Cuervos.

Felis pajero and *F. concolor* are listed by Aplin and Figueira; both are said to be scarce but might be found in the north. Figueira also lists *paraguensis, eyra,* and *yaguarondi,* with the same remarks.

Akodon arenicola (Waterhouse).

Mus arenicola WATERHOUSE, Proc. Zool. Soc. London, p. 18, Feb. 14, 1837; Voy. Beagle, Zool., p. 48, pl. 13, pl. 34, figs. 7a, b, c, d. Type from Maldonado.

This is the most common mouse in Uruguay. It was taken in fields, woods, and swamps.

Specimens taken.—Total 54: Maldonado 6; 15 miles north of San Vicente de Castillos, Dept. Rocha 5; Passo de las Avarias, Rio Cebollati, Dept. Minas 1; 8 miles east of Treinta y Tres 1; Polanco, Dept. Minas 11: Arazati, Dept. San Jose 1; 10 kilometers south of La Lata, Dept. Colonia 5; 15 kilometers southwest of Dolores, Dept. Soriano 23; Mercedes, Dept. Rio Negro 1 (received in exchange from British Museum).

Other records.—*Hesperomys arenicola,* Figueira, 1894, p. 18; *Akodon arenicola,* Thomas, Ann. and Mag. Nat. Hist., (7), 9, p.62, 1902.

Akodon obscurus (Waterhouse).

Mus obscurus WATERHOUSE, Proc. Zool. Soc. London, p. 16, Feb. 14, 1837; Voy. Beagle, Zool., p. 52, pl. 15, fig. 2, pl. 34, figs. 9a, b. Type from Maldonado.

Akodon obscurus was found with *A. arenicola* but only towards the eastern side of the country.

Specimens taken.—Total 13: Maldonado 1; 15 miles north of San Vicente de Castillos, Dept. Rocha 5; Polanco, Dept. Minas 7.

Other records.—*Hesperomys obscurus* Figueira, 1894, p. 18; *Akodon obscurus,* Thomas, Ann. and Mag. Nat. Hist., (9), 3, p. 214, 1919.

Hesperomys bimaculatus (Waterhouse).

Mus bimaculatus WATERHOUSE, Proc. Zool. Soc. London, p. 18, Feb. 14, 1837; Voy. Beagle, Zool., p. 43, pl. 12, pl. 34, figs. 3a, b, c. Type from Maldonado.

This mouse was rather scarce, only three specimens being taken, one in a wheat field and two in some wooded country near the edge of a river.

Specimens taken.—Total 3: Passo de los Avarias, Rio Cebollati, Dept. Minas 2; Polanco, Dept. Minas 1.

Other record.—Figueira, 1894, p. 17.

Oryzomys flavescens (Waterhouse).

Mus flavescens WATERHOUSE, Proc. Zool. Soc. London, p. 19, Feb. 14, 1837; Voy. Beagle, Zool., p. 46, pl. 13, pl. 34, figs. 5a, b. Type from Maldonado.

This rodent was always found with the *Akodons* but was not so common.

Specimens taken.—Total 25: Maldonado 11; Quebrada de los Cuervos, Dept. Treinta y Tres 3; 10 kilometers south of La Lata, Dept. Colonia 2; 15 miles southwest of Dolores, Dept. Soriano 6; Passo de las Avarias, Rio Cebollati, Dept. Minas 3.

Other record.— *Hesperomys flavescens* Figueira, 1894, p. 17.

Oryzomys delticola Thomas.

Oryzomys delticola THOMAS, Ann. and Mag. Nat. Nist., (8), **20**, p. 96, 1917. Type from Isla Ella, Parana Delta, Argentina.

Six of the specimens taken were caught sixty miles up river from the type locality and are referred to this species until comparison with the type is possible.

Specimens taken.—Total 10: 15 kilometers southwest of Dolores, Rio Uruguay, Dept. Soriano 6 (3 skins and skulls, and 3 skulls only); Passo de las Avarias, Rio Cebollati, Dept. Minas 2; Quebrada de los Cuervos, Dept. Treinta y Tres 2.

Oxymycterus nasutus (Waterhouse).

Mus nasutus WATERHOUSE, Proc. Zool. Soc. London, p. 16, Feb. 14, 1837; Voy. Beagle, Zool., p. 56, pl. 17, fig. 2, pl. 33, figs. 7a, b, c, pl. 34, fig. 10a. Type from Maldonado.

Most of the specimens taken were found near the coast. All were caught in or near swamps or swampy ground, in traps baited with cheese.

Specimens taken.—Total 7: Maldonado 5; 15 kilometers north of San Carlos, Dept. Maldonado 1; Arazati, Dept. San Jose 1.

Other records.—*Hesperomys nasutus* Figueira, 1894, p. 18.

Reithrodon typicus Waterhouse.

Reithrodon typicus WATERHOUSE, Proc. Zool. Soc. London, p. 30, Feb. 14, 1837; Voy. Beagle, Zool., p. 71, pl. 33, fig. 4a. Type from Maldonado.

This mouse was not common but specimens were taken at four widely separated localities. It was obtained in rocky hills, wheat fields, and along the sandy coast.

Specimens taken.—Total 7: 15 miles north of San Vicente de Castillos, Dept. Rocha 1; Quebrada de los Cuervos, Dept. Treinta y Tres 2; Polanco, Dept. Minas 3; Arazati, Dept. San Jose 1.

Other records.—Figueira, 1894, p. 18.

Holochilus vulpinus (Lichtenstein).

Mus vulpinus LICHTENSTEIN, in Brants' Het. Geslacht. d. Muizen, pp. 137-138, 1827; Darstellung, Tafel 33, fig. 2, 1827. Type from Uruguay.

This rat was rather common along the Rio Cebollati and in some marshes in Treinta y Tres. One was shot at night by shining its eyes with a jack light.

Specimens taken.—Total 9: Passo de las Avarias, Rio Cebollati, Dept. Minas 4; 8 miles east of Treinta y Tres 5.

Scapteromys tomentosus (Lichtenstein).

Mus tomentosus LICHTENSTEIN, Darstellung, Tafel 33, fig. 1, 1827. Type from Uruguay.

Scapteromys tumidus (Waterhouse).

Mus tumidus WATERHOUSE, Proc. Zool. Soc. London, p. 15, 1837. Voy. Beagle, Zool., p. 57, pl. 18, pl. 34, fig. 11a. Type from Maldonado.

Although a good deal of trapping was done in swampy places and near rivers, neither of these animals was caught. Of *S. tomentosus* apparently only the type is known, and of *S. tumidus* the type and one specimen collected by Aplin. As both of these species have Maldonado for a type locality, it seems probable that more specimens will show that *tumidus* is a synonym of *tomentosus*. Mr. Thomas, in his description of *S. aquaticus* (Ann. and Mag. Nat. Hist., 1920, (9), 5, p. 477), seems to hint at this in a footnote for he states that "Prof. Matschie informs me that Sellow's collections

were made near Maldonado." *S. aquaticus* appears to be much more common as Mr. Thomas reports 23 specimens from the Isla Ella, Parana Delta, Argentina.

Figueira mentions this animal but the specimens labeled *Hesperomys tumidus* which I saw in the Museo Nacional at Montevideo were *Holochilus vulpinus*.

Ctenomys torquatus Lichtenstein.

Ctenomys torquatus LICHTENSTEIN, Darstellung, Tafel 31, fig. 1, 1827. Type from Uruguay River.

These animals were especially abundant in the sandy country about Maldonado. They were easily shot by waiting near the hole until one appeared. Even when shot at and missed, it was not more than five minutes before the animal appeared again. They come out on top of the ground at times, and, if frightened then, become confused and dash about looking for a hole to escape by. They are rather awkward above ground however. The call is a deep throaty, "Tuco-tuco-tuco tuc."

One was caught by placing a slip noose over the hole and was kept alive for a number of days. In digging it worked hand over hand and pushed the dirt out behind it, using both feet at once and raising the end of the body by pushing down with the tail. This explained the worn places on the tails of the ones secured. Some of the people eat these animals roasted.

Besides the localities where specimens were taken, holes were seen at Arazati, Dept. San Jose. There are two specimens in the Museo Nacional at Montevideo from the department of Tacuarembo.

Specimens taken.—Total 17: Maldonado 15; 15 miles north of San Vicente de Castillos, Dept. Rocha 2; Passo Mercedes, Dept. Rio Negro 2 (received in exchange from British Museum).

Other records.—Ctenomys brasiliensis Waterhouse, 1839, p. 79; Aplin 1894, p. 308; Figueira, 1894, p. 16.

Cavia rufescens pamparum Thomas.

Cavia pamparum THOMAS, Ann. and Mag. Nat. Hist., (7), 8, p. 538, 1901.

Cavies are no doubt the commonest rodents in Uruguay, where every swamp is filled with them. They caused much trouble as they sprung the small mouse traps set in or near swamps for other mammals. When roasted over the fire, the flesh has a very good taste.

Specimens taken.—Total 23: Maldonado 13; Quebrada de los Cuervos, Dept. Treinta y Tres 1; Polanco, Dept. Minas 6; Arazati, Dept, San Jose 1; 15 miles southwest of Dolores, Dept. Soriano 2.

Other records.—*Cavia cobaia* Waterhouse, 1839, p. 89; *Cavia aperea* Aplin, 1894, p. 309; *Cavia leucopyga* Figueira, 1894, p. 15; *Cavia pamparum* Thomas, 1901a, p. 536; *Cavia rufescens pamparum* Thomas, 1917, p. 155.

Myocastor coypus bonariensis (Geoffroy).

Myopotamus bonariensis "Commerson MS," E. GEOFFROY, Ann. Mus. d'Hist. Nat. Paris, 6, pp. 81-83, 1805.

Coypus have been so hunted for their fur that they are now quite scarce in settled districts. I heard of many at the Laguna Negra in Rocha but did not have a chance to visit there. At most places the people said there were a few left where many had been.

Specimens taken.—15 miles southwest of Dolores, Dept. Soriano 2 juv.

Other records.—*Myopotamus coypu* Aplin, 1894, p. 313; Figueira, 1894, p. 16.

Hydrochoerus hydrochaeris notialis Hollister.

Hydrochoerus hydrochaeris notialis HOLLISTER, Proc. Biol. Soc. Wash., 27, p. 58, 1914.

Capybaras were quite plentiful in the rivers and swamps. In hunting them at night with a jack light I found that the reflection of their eyes was very similar to that of the nighthawk (*Hydropsalis torquata furcifera*). Before discovering that the capybara's eye was a dull yellow and the nighthawk's a bright, sparkling yellow, I wasted shells on birds and let the animals escape.

Specimens taken.—Total 2: Passo de las Avarias, Rio Cebollati, Dept. Minas 1; Quebrada de los Cuervos, Dept. Treinta y Tres 1 (skull only).

Other records.—*Hydrochoerus capybara* Waterhouse, 1839, p. 91; Aplin, 1894, p. 309; Figueira, 1894, p. 15.

Mus musculus musculus Linnaeus.

Mus musculus LINNAEUS, Syst. Nat., ed. 10, 1, p. 62, 1758.

Rattus norvegicus (Erxleben).

Mus norvegicus ERXLEBEN, Syst. Regni. Anim., 1, p. 38, 1777.

Both of these rodents were only too plentiful in many places. At the first camp, near Maldonado, there was almost nothing but

house rats and they were met with everywhere else. On the Rio Cebollati a man told me that his corn crib, placed in the middle of an open field, was overrun with mice. With the traps I loaned him he caught thirty-five house mice in one night.

Other records.—Waterhouse, 1839; Aplin and Figueira, 1894.

Lepus europaeus europaeus Pallas.

Lepus europaeus PALLAS, Nov. Spec. Glir. Ord., p. 30, 1778.

The *liebre* is one of the commonest and most destructive rodents in Uruguay. It was seen in all departments visited. At every estancia, packs of dogs were kept to hold it in check. The dogs, however, seemed to have killed off more of the other medium-sized mammals than hares. I could not find out when the hares were introduced.

Specimens taken.—Total 8: 15 miles north of San Carlos, Dept. Maldonado 1; Maldonado 1; 15 miles north of San Vicente de Castillos, Dept. Rocha 2; 8 miles east of Treinta y Tres 1; Quebrada de los Cuervos, Dept. Treinta y Tres 1; Polanco, Dept. Minas 1; 15 miles southwest of Dolores, Dept. Soriano 1.

Lagostomus maximus (Desmarest).

Dipus maximus "Blainville," DESMAREST, Nouv. Dict. d'Hist. Nat., nov. ed., 13, pp. 117-119, 1817.

The only mention of this animal is found in Marelli's list in which he includes Uruguay in its range. Its occurrence in Uruguay is doubtful.

Pecari tajacu (Linnaeus).

Sus tajacu LINNAEUS, Syst. Nat., ed. 10, 1, p. 50, 1758.

Figueira says that this peccary is almost extinct in Uruguay but that it might be found in Artigas or Cerro Largo.

Blastocerus bezoarticus campestris (Cuvier).

Gouazoubi AZARA, Quad. Paraguay, 1, p. 77, 1801.

Cervus campestris CUVIER, Dict. Sci. Nat., Paris, 7, pp. 484-485, 1817.

This deer was plentiful in one locality in Rocha but I heard little about it elsewhere. In this place the country was open, with a few palms, a little swamp, and large patches of high grass. I hunted them from the Ford truck, which was found to be the best way, as they were very wary of a man on foot or horseback. They

were curious about the truck and easily approached. I saw about twenty-five and shot four in about an hour and a half. The owner of the land considered that there were very few there and said that on another piece of land which he had rented out, there were hundreds.

Specimens taken.—25 miles north of San Vicente de Castillos, Dept. Rocha 4.

Other records.—*Cervus campestris* Waterhouse, 1839, p. 29; Burmeister, 1861, p. 430; Figueira, 1894, p. 14; *Cariacus campestris* Aplin, 1894, p. 313.

Blastocerus dichotomus (Illiger).

Premier Cerf ou Gouazoupou AZARA, Quad. Paraguay, 1, p. 70, 1801.

Cervus dichotomus ILLIGER, Abhandl. K. Akad. Wiss. Berlin, (1811), p. 117, 1815.

The marsh deer is now very rare in Uruguay. I was told there might be a few in Rocha near where the pampa deer was taken.

Other records.—*Cervus paludosus* Figueira, 1894, p. 15; Aplin, 1894, p. 314.

Mazama simplicicornis (Illiger).

Quatrieme cerf ou gouazoubira AZARA, Quad. Paraguay, 1, p. 86, 1801.

Cervus simplicicornis ILLIGER, Abhandl. K. Akad. Wiss. Berlin, (1811), p. 117, 1815.

From reports received, the brocket deer appears to be rather scarce. Even in 1894 Aplin and Figueira reported it as rare. There were a few at the Quebrada de los Cuervos, where I saw three skulls and purchased two. I feel sure that farther north in Tacuarembo, Salta, and Artigas it would be more plentiful. Allen (Bull. Am. Mus. Nat. Hist., 34, p. 527, 1915) reported the longest antler of his series of many species of brocket deer as 135 mm. on a specimen of *M. simplicicornis* from Paraguay. On one of our specimens the antlers measure 144.3 mm. and 134.7 mm. respectively, from burr to tip.

Myrmecophaga tridactyla Linnaeus.

Myrmecophaga tridactyla LINNAEUS, Syst. Nat., ed. 10, p. 35, 1758.

Figueira is the only one who records the Great Anteater and he gives it as scarce and only found in the northern and eastern departments.

Dasypus septemcinctus Linnaeus.

Dasypus septemcinctus LINNAEUS, Syst. Nat., ed. 10, p. 51, 1758.

This is the common armadillo of Uruguay and is known as the *Mulita*. At one estancia in Treinta y Tres the owner protected it and there were many there. Five or six could be seen running about almost any evening about sunset. The flesh is quite good, tasting a little like roast pork. When pursued the *Mulita* starts to dig in and in hunting it one man tries to hold its tail while another man digs it out. I found that putting a small calibered pistol down the hole and shooting it in the back, was the surest way of getting the animal.

Specimens taken.—Total 8: 15 miles west of San Vicente de Castillos, Dept. Rocha 1; Passo de las Avarias, Rio Cebollati, Dept. Minas 1; 8 miles east of Treinta y Tres 3; 10 kilometers south of La Lata, Dept. Colonia 1; 15 miles southwest of Dolores, Dept. Soriano 1.

Other records.—Dasypus hybridus Waterhouse, 1839, p. 92; *Praopus hybridus* Burmeister, 1861, p. 428; *Tatusia septemcincta* Aplin, 1894, p. 307; *Dasypus septemcinctus* Figueira, 1894, p. 10.

Dasypus novemcinctus Linnaeus.

Euphractus sexcinctus flavimanus (Desmarest).

Euphractus villosus (Desmarest).

I saw no specimens of any of these armadillos but heard of one that the natives call the "*Peludo.*" Aplin and Figueira agree that *D. novemcinctus* is scarce but regarding the other two they differ. Aplin records *E. s. flavimanus* as the more common while Figueira claims that *D. villosus* is the common form. It will take more work in northern Uruguay to settle this question.

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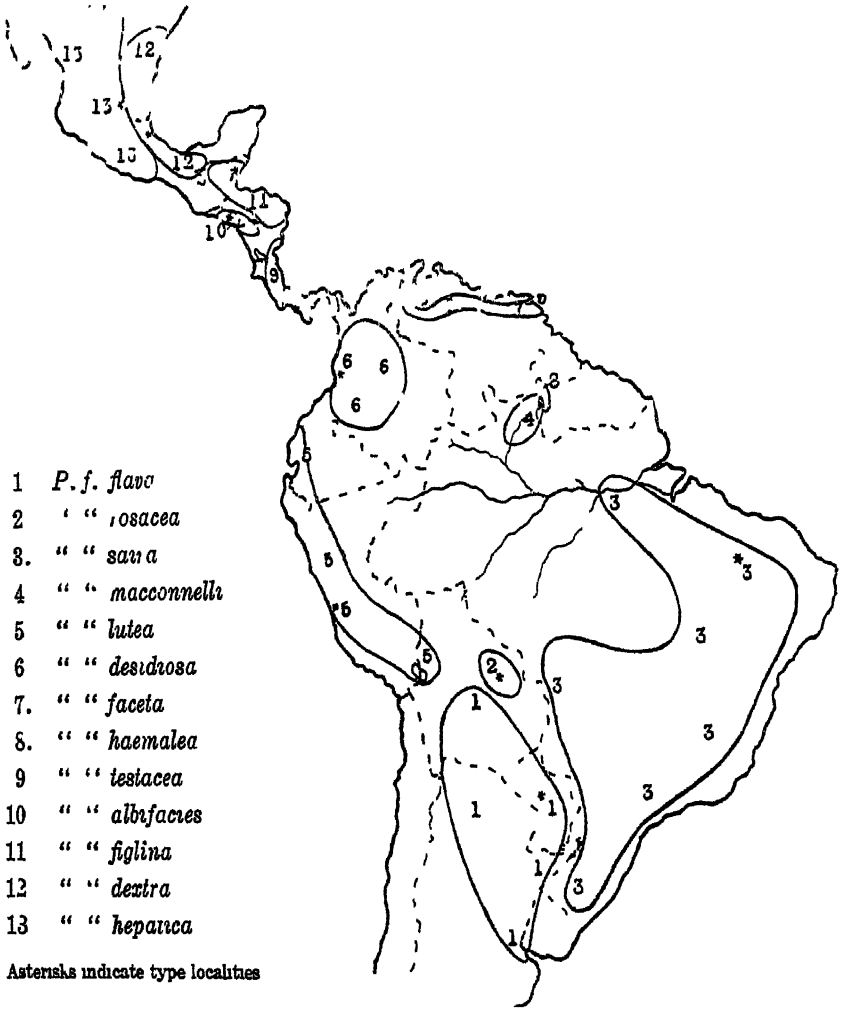
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A STUDY OF THE TOOTH-BILLED RED TANAGER, PIRANGA FLAVA

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A STUDY OF THE TOOTH-BILLED RED TANAGER, PIRANGA FLAVA

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The present study began in a comparative examination of the various tanagers allied to *Piranga testacea* with the object of determining the affinities and relationships of the Peruvian race *lutea*, long known as *tschudii*. As the examination has progressed, it has become evident that certain members of the genus *Piranga* occupy positions of much closer relationship to *testacea* than have been accorded them in recent years. These relationships have been suggested occasionally by different authors, and hints may be found in the scattered literature on the group where, at one time and another, the forms have been variously united or combined.

Ridgway (Baird, Brewer, and Ridgway, Hist. N. A. Birds, **1**, p. 434, 1874) once considered *testacea* as a race of *saira*, and *azarae* (=*flava*) as a race of *hepatica*. D'Orbigny (Voy. Am. Mér., Ois., p. 264, 1839) included certain specimens from Chiquitos, Bolivia, in the account of his *azarae* (=*flava*), while, more recently, Todd (Proc. Biol. Soc. Wash., **35**, p. 92, 1922) described the Chiquitos birds as a new race of *saira*, *rosacea*. Salvin and Godman (Biol. Cent. Amer. Aves, **1**, p. 293, 1883) commented on the slight differences which separate *testacea* (including the more recently described *lutea* and *desidiosa*), *azarae* (=*flava*), *hepatica*, and *haemalea*.

Examination of numerous specimens of these forms and certain of their unquestioned allies has fostered the belief that all are races of a single species whose distribution extends from eastern Argentina to southwestern United States with little interruption in continuity, though with lateral extensions into Brazil and the Guianas and into Venezuela and the Guianas in two lines of development which meet at their outward extremities. Throughout this extensive group, the color, general pattern, size, shape of bill, and other major characters are substantially identical or are subject to variability which largely overcomes the individual differences. There are certain features of

plumage and molt which seem to be present in all the forms under consideration but which are different from those of the other congeneric groups. The various forms replace each other geographically in all parts of the range. Finally, at the northern and southern extremities forms are produced which are strikingly alike in racial characters that are not shared by the intervening subspecies.

These considerations together present a volume of evidence that is more than circumstantial. There is no question that all the forms under discussion are of common phylogenetic origin. Some of them are more strongly differentiated than others, some distinctly intergrade with adjacent forms, while others are separated from their nearest allies by so slight a gap in proportion to the individual variation in that direction that the relationship is not seriously impaired. In the following treatment, therefore, I have considered as races of *P. flava* all the forms under discussion. I have omitted *roseo-gularis* and *cozumelae* which I believe to be sufficiently distinct from the remainder to warrant their retention in a separate species although their affinities are much closer to *flava* than to any other member of the genus *Piranga*.

HABITAT

Piranga flava is a bird of the somewhat open woods, the edges of groves, and scattered trees in the open. At certain seasons it may be found in heavy forest in flocks of its own or associated with vagabond troops of mixed origin, but at breeding time it seems to return to the more open situations. In the most northern localities it particularly favors the pine-covered slopes of the mountains and the clumps of oaks in pine districts up to 9,000 feet (Bailey, Birds New Mexico, p. 667, 1928). In Mexico it is found from sea level up to some 3,000 meters on the eastern coast (Sumichrast, Mem. Bost. Soc. Nat. Hist., 1, pt. 4, p. 549, 1869—*'hepatica'* = *dextra*; Vera Cruz) and winters also at sea level on the Pacific side below Colima (Beebe, Two Bird Lovers in Mexico, pp. 306, 395, 1905—*hepatica*). These tropical coastal records provide evidence that the pine and oak association is not constant at all seasons.

In northeastern Guatemala, at Poctum, *figlina* inhabits the pine ridge (Ridgway, Bull. U. S. Nat. Mus., **50**, pt. 2, p. 88, 1902) and in Salvador *albifacies* is found in pine-oak territory at about 3,500 feet (Van Rossem, MS.). Costa Rican records of *testacea* are from the Pacific lowlands and upper Caribbean slopes up to about 5,000 feet on the central plateau (Carriker, Ann. Car. Mus., **6**, p.

855, 1910). Carriker describes *testacea* as an inhabitant of heavy forest, having secured three females at La Hondura, but he records having noted another bird at Boruca which he says is mixed woodland and savanna. In Panamá, Griscom (Am. Mus. Novit., **282**, p. 10, 1927) records *'testacea* subspecies' from Cape Garachiné which he describes as arid tropical; apparently it is much like the country about Colima, Mexico, where *hepatica* was found in winter.

In Ecuador, *lutea* has been taken at sea level at Esmeraldas (Chapman, Bull. Am. Mus. Nat. Hist., **36**, p. 614, 1917—*'testacea'*). This race was described originally from Callao, Perú, which is at sea level, and I have taken it at about 3,500 feet elevation at Santa Eulalia, above Callao, in similar arid tropical country, as well as at 10,400 feet in the arid temperate zone of the upper Marañón River, and at 5,700 feet in humid subtropical conditions at Chinchao.

In Argentina, Uruguay, Paraguay, and parts of Bolivia, *flava* inhabits the open or sparsely wooded 'campos' at low elevations. Kerr (Ibis, 1892, p. 124) mentions its occurrence in open plains with scattered patches of scrubby trees. In winter it has been found in the wooded ravines of the sierras although as spring approaches it is said to abandon the mountains gradually and occupy the more open valleys (White, P. Z. S. London, 1883, p. 37). Wetmore (Bull. U. S. Nat. Mus., **133**, p. 392, 1926) notes it as common in forested areas where it is found with bands of other small birds in forest growth, usually in taller trees; since these notes do not refer to breeding examples they do not necessarily conflict with those of Kerr and White. D'Orbigny (Voy. Am. Mér., Ois., p. 264, 1839) gives the range as from near sea level to 2,000 meters. Exact vegetational associations have not been reported.

Northward, *saira* and *macconnelli* occur in sparsely wooded campos such as at Chapada, Matto Grosso, 2,500 feet. They are not reported from forested regions which lack all traces of open country. Still farther northward, *faceta* inhabits foothills and the lower mountain slopes in dry woods, avoiding excessive humidity, ranging from 2,000 to 5,000 feet in the Santa Marta region (Todd and Carriker, Ann. Car. Mus., 14, pp. 488-489, 1922); *haemalea* was described from Mt. Roraima, but all the evidence at hand tends to show that it does not inhabit the forest but rather the savanna at the foot of the mountain. It has been taken also at Quonga and Annai, farther to the eastward, at the edge of savanna country.

Thus there is seen to be a certain variability in habitat according to locality and season, and the species apparently is not prohibited

from visiting certain regions outside of its breeding range through absence of a particular vegetational association, although it has some preferences. The zonal distribution of the species as a whole can not be given in general terms except to this extent, that the species does not commonly inhabit lowland tropical forest, that it prefers the lower slopes of the mountains and open woods but may be found in arid tropical regions where there is some growth of trees, and that it extends its range upwards on wooded mountain slopes where the forest is broken either by more open patches or by clearings. When savanna meets dense forest, it may occupy the edges of the woods.

MIGRATION

The migratory habit of the species has not been studied thoroughly. It is developed in north-temperate latitudes (in *hepatica*), but there is no evidence to show that it does more than carry the most northerly breeding individuals southward in winter just far enough to give them a warm climate for that season; those individuals which breed in such a climate may remain in the same latitude throughout the year. There is, however, some vertical or altitudinal migration and apparently also a certain vagrancy in tropical and subtropical regions which leads some of the races into territory in which they do not remain to breed.

PLUMAGES AND MOLTS

A general description may be drawn up for the entire species, to serve as a basis for comparison of the various races. Fully plumaged males are some tint or shade of red or scarlet-red, darker on the back, paler and clearer below, with a varying amount of duller shading on the flanks and across the breast. The lores are grayish or dusky white with a greater or lesser amount of red at the tips of the feathers; this pale area may be restricted to the lores or extended to include the chin, the anterior part of the malar region, and the auriculars, in varying amount. The top of the head may be uniform with the back or somewhat paler and brighter on the upper margin of the lores, across the forehead, or over the entire crown. The rump and upper tail-coverts are slightly brighter than the back; the under tail-coverts are usually brighter than the belly. The wings and tail are dark brown edged externally on quills and coverts with a tint of red somewhat brighter than the back. The under wing-coverts are pink; the inner margins of the remiges are dull

pink. The bill is blackish with a more or less pronounced pale spot on the gonys behind the tip, and is usually strongly toothed in the middle of the maxillary tomia. The size of this tooth varies within the limits of every race and in some specimens there is little trace of it, but the adult bill is always dark in color.

Females are olive yellow or green above and clear yellow below, with as much variation in tone as occurs in the red of the males. The pattern is that of the male with yellow or green replacing red. The bill is the same in both sexes.

The adult plumage of both sexes is modified by grayish edgings, dusky suffusions, and lighter or darker tones of the colors, and by extension or reduction of certain areas of pattern. These modifications, with an occasional difference in size, produce all the varieties of the species; there is no pronounced differentiation in any form.

Immature specimens of most of the races have not been available for study. A few scattered examples, mostly of molting birds which retain various portions of immature plumage, have made it possible to determine certain general characteristics. Young birds appear to be somewhat similar to adult females but are duller and browner, with obscure dusky streaks or dusky centers on most of the body plumage. The rectrices are more acute at the tips, the upper wing-coverts are margined with yellowish or buffy tints, and the outer remiges are edged with dull white or yellow. A young *hepatica* is described in detail under that race and such traces of immature plumage as have been found in other races are described similarly in their places.

Very little information is on record regarding the changes of plumage due to age and season. From the evidence at hand the case appears to be complicated. Regardless of race or locality, many apparently adult males exhibit considerable irregularity or variety in the combination of red and green or yellow feathers. Different individuals are molting variously from red to red, from yellow and green to the same, from red to yellow, from yellow to red, or from particolor to particolor or to entire red or yellow. In certain instances, red birds not in molt exhibit yellow feathers at scattered places throughout the plumage, with these yellow feathers considerably fresher and less worn than the surrounding red ones as though accidental loss had resulted in the replacement of the missing feathers by some of the other color.

Perhaps the most curious specimen of mixed molt that I have examined is a male of *figlina* from the Segovia River, Honduras

(U. S. Nat. Mus. No. 112,092). The left wing of this specimen shows the innermost secondaries fresh yellowish green replacing old worn red plumes; the right wing shows fresh red secondaries replacing worn yellowish ones. New primaries on the right are red; old ones on the left are red.

In all, about forty-five percent of the apparently adult males examined of all the races show some traces of green or yellow in the plumage. Swarth (Pac. Coast Avif., 4, p. 47, 1904) reports that of the male *hepatica* seen by him in the Huachuca Mountains, there were hardly any that did not show some greenish yellow feathers. He also reports a breeding male, taken June 2, in full green and yellow, strikingly like the females but larger. Among a series of *saira* from Matto Grosso, Brazil, I have found two birds in plumage similar to the female but both sexed as males (Amer. Mus. Nat. Hist. Nos. 32,031 and 32,014). Both are without any signs of immaturity. Scott (Auk, 5, p. 30, 1888) notes that specimens of *hepatica* taken early in September demonstrate that in fall the males assume a plumage like that of the adult female and adds that he has found males in similar but not identical plumage breeding late in June. Scott's conclusions, however, seem to need some modification.

Todd and Carriker (Ann. Car. Mus., 14, pp. 488, 489, 1922) remark that, in the Santa Marta region, males of *faceta* in first winter plumage resemble the adult females but that it is not clear whether or not they breed in this plumage. Four specimens are mentioned as having been taken from June 16 to August 2 in various stages of molt from this immature (first winter) plumage into adult dress, presenting mixed red and yellow coloration.

The actual breeding time of most of the races has not been recorded and is determinable in some cases only through immature specimens. The breeding time of *hepatica* seems to be June and July. Bertoni (Hornero, 1, p. 190, 1918) found *flava* at Misiones, Argentina, breeding early in October. Carriker's notes mention several nests and eggs of *faceta* but give no dates for them. I have examined a young male of *faceta* from Caracas, Venezuela (Field Mus. Nat. Hist. No. 34,684), taken in March, which is in first annual plumage of green and yellow although it retains a few juvenal feathers not yet lost in the molt. Chapman (Bull. Am. Mus. Nat. Hist., 7, p. 323, 1895) records a male *'haemalea'* (=*faceta*), taken at Caura, Trinidad on April 21, in the plumage of the female but

with testes measuring about .18 inch in longer diameter, showing breeding time to be not far distant. Allen (Bull. Am. Mus. Nat. Hist., **21**, p. 279, 1905) gives the general breeding season for birds in the Santa Marta region as from about the first of April to the middle of June, although no *Piranga* is mentioned in this connection.

In Perú I found no nests of *lutea*, but other birds were breeding in the vicinity where it was collected in latter April, at the close of the rainy season. An August bird is in mixed plumage, with some distinctly yellowish brown feathers of comparatively fresh texture among worn and abraded red ones. Another male, taken in November, is replacing worn yellow by fresh red throughout.

A series of specimens of *hepatica* and *dextra* (which occupy adjacent regions in Mexico and southwestern United States), taken in January and every month from March to October, demonstrates a complete molt beginning in July and finished in October, after which there is a gradually increasing amount of abrasion and bleaching until, at the breeding season, the birds are very worn and faded. In this series the first to show any molt is a male, dated July 22, in which the following areas only are affected—forehead, chin, upper breast and sides, interscapulars, middle rectrices, inner primaries, and greater wing-coverts. An example dated August 15 shows the renewal of plumage to have progressed farther posteriorly. On September 24 the molt is still more advanced and almost complete; on October 19 it is perfectly complete. January 4 shows a bird in fresh, comparatively unworn plumage. On March 5, 21, and 22 some abrasion is evident; April 13, 24, and 25 abrasion is increased; May 27 there are traces of fading; June 5 and 22 there is increased fading and wear; July 2 shows a ragged, worn, and disreputable plumage in the last stage before the molt which, as shown above, is in progress on July 22.

There is no indication of any prenuptial or other partial molt in any of these specimens, nor is there any place in the sequence where transformation could occur undetected except at the unlikely period between October 19 and January 4, immediately after the annual molt is complete. There are a few specimens throughout the series which show the renewal of an occasional odd feather or so, presumably lost by accident, but these renewals are too irregular and asymmetrical to form part of a true molt.

Young birds by their post-juvenal molt apparently pass from the juvenal streaked plumage into the dress of the adult female

which they wear through the following breeding season. That this post-juvenal molt is sometimes only partial is suggested by several specimens which have retained certain parts of the juvenal plumage after the molt seems to be complete. At the following annual molt the young males may acquire some red feathers but it is uncertain whether any of them obtain a fully red costume at this time. Possibly a gradually increasing amount of red is secured year by year until the entire plumage is red, but, on the other hand, some males may never acquire a fully red dress but may continue in particolored costume throughout life. A few examples appear to have the general tone of red modified by an orange tint without the possession of any definite areas of green or yellow. *Piranga erythromelas* shows the same tendency at times.

The significance of these peculiarities is not easily determined. It seems possible that the males of *Piranga flava*, most of whose races are intertropical and non-migratory, have almost completely lost the faculty, once possessed, of assuming the female plumage during the winter. A repressed ability in this direction is shown by the adventitious renewal feathers and by the retention of particolored or yellowish-tinged plumage at other seasons. The loss of a distinct winter plumage probably was synchronous with the loss of a post-nuptial molt. Adventitious renewals, necessitated out of season, may possibly stir into activity certain dormant faculties and result in the acquisition of some of the lost post-nuptial plumage which may then remain as part of the annual plumage. Examples of mixed coloration have been mentioned as showing casual replacements of the wrong color, though the reason for the phenomenon is in the realm of speculation. In any case the effect is curious and has been misleading to many writers who, almost without exception, have recorded particolored specimens as showing certain transition from immature to adult plumage, regardless of season. The full explanation must await intensive study in the field or in the aviary.

In the following discussion of the various races, the order of arrangement will be geographical, from south to north, beginning with the typical race. Descriptions will be detailed or comparative as occasion necessitates. Color terms when capitalized indicate direct comparison with Ridgway's "Color Standards and Color Nomenclature." Specimens are in Field Museum of Natural History unless otherwise noted.

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Carnegie Museum, Pittsburgh, Pa.; Mr. Outram Bangs, Museum of Comparative Zoology, Cambridge, Mass.; Dr. C. W. Richmond, U. S. National Museum, Washington; and Mr. Donald R. Dickey and Mr. A. Van Rossem, California Institute of Technology, Pasadena, for the loan of comparative material without which this study could not have been made; also to Mr. Dickey and Mr. Van Rossem for permission to describe a new form found in material received from them. To Dr. C. E. Hellmayr, Field Museum of Natural History, Chicago, I am indebted for making various comparisons of specimens in European museums which have been of great assistance in determining the status and distribution of certain forms.

Piranga flava flava (Vieillot).

"H(abia) amarilla" AZARA, Apunt., 1, p. 359, no. 87, 1802—Paraguay; ♀.

"H(abia) punzó" AZARA, Apunt., 1, p. 359, no. 88, 1802—Paraguay; ♂.

S(altator) Flavus VIEILLOT, Tabl. Ency. Méth., 2, p. 791, 1822—ex Azara, Habia amarilla; ♀.

S(altator) Ruber VIEILLOT (nec *Fringilla rubra* LINN.), Tabl. Ency. Méth., 2, p. 792, 1822—ex Azara, Habia punzó; ♂.

P(yranga) mississipensis LAFRESNAYE and D'ORBIGNY (nec *Tanagra mississipensis* GMELIN=*Piranga r. rubra*), Mag. Zool., 1837, cl. 2, p. 33—part, Paraguay; ex Azara.

Pyranga Azarae D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 264, 1839—part, Paraguay, Buenos Aires, and Yungas[1] and Valle Grande, Bolivia; ex Azara; descr. ♀, ♂; crit.: HARTLAUB, Index Azara, p. 6, 1847—nomencl.: RIDGWAY, Proc. Acad. Nat. Sci. Philad., June, 1869, p. 132—Paraguay (Capt. Page): FRENZEL, Journ. Orn., 39, p. 119, 1891—Córdova, Argentina: HOLMBERG, Seg. Censo Rep. Argent., 1, (6), p. 543, 1895—Argentina; descr.: STEMPELMANN and SCHULZ, Bol. Acad. Nac. Cienc. Córdoba, 10, p. 399, 1890—Córdoba, Argentina.

P(yranga) azarae BONAPARTE, Consp. Av., 1, p. 241, 1850—Paraguay, Bolivia.

Tanagra Azarae DOERING, Period. Zool., 1, p. 254, 1874—Río Guayquiraro, Argentina.

Pyranga saira SCLATER (nec *Tanagra saira* SPIX), P. Z. S. London, 1856, p. 124—part, Paraguay and Buenos Ayres: BARROWS, Bull. Nutt. Orn. Cl., 8, p. 91, 1883—Concepción del Uruguay, Río Uruguay: SCLATER, Cat. Am. Birds, p. 80, 1862—part, synon.

Pyranga coccinea BURMEISTER (nec *Tanagra coccinea* BODDAERT=*P. r. rubra*), Journ. Orn., 8, p. 253, 1860—Paraná.

[1]D'Orbigny's record from the "province" of Yungas is of uncertain allocation. It is not certain that he preserved a specimen from such a locality nor to what definite locality he referred. If he found a member of the group in the Yungas of La Paz it was almost certainly *lutea*; if in the Yungas of Cochabamba, it probably was *rosacea*; or it may have been typical *flava* from some other region south of the cordillera within some so-called province of Yungas.

P(yranga) coccinea BURMEISTER, Reise La Plata, 2, p. 479, 1861—Paraná, and "Banda Oriental"=Uruguay.

(*Pyranga hepatica*) var. *azarae* RIDGWAY in BAIRD, BREWER, and RIDGWAY, Hist. N. A. Birds, 1, p. 434, 1874—Paraguay.

Pyranga azarae SCLATER, P. Z. S. London, 1879, p. 601—part, Cinti, Bolivia (part): SALVIN, Ibis, 1880, p. 353—Tucumán, Argentina: WHITE, P. Z. S. London, 1883, p. 37—Cosquin and Córdova, Argentina; migration and plumages: SCLATER, Cat. B. Brit. Mus., 11, p. 186, 1886—Uruguay; Córdova, Salta, and Tucumán, Argentina; Cinti, Bolivia: WITHINGTON and SCLATER, Ibis, 1888, p. 462—Lomas de Zamora, Buenos Aires: SCLATER and HUDSON, Argent. Ornith., 1, p. 40, 1888—Argentina: SALVADORI, Boll. Mus. Torino, 10, no. 208, p. 4, 1895—Colonia Risso, n. Paraguay: KERR, Ibis, 1892, p. 124—Fortin Page, lower Pilcomayo R., Argentina: SALVADORI, Boll. Mus. Torino, 12, no. 292, p. 6, 1897—Aguairenda, s. e. Bolivia; San Francisco, San Lorenzo (Jujuy), and Tala (Salta), Argentina: BERTONI, Rev. Agron. Parag., 1, (9 and 10), p. 531, 1898—nest, eggs, food habits: GRANT, Ibis, 1911, p. 94—Colonia Mihanovitch and Santa Elena, n. Argentina.

Pyranga flava KOSLOWSKY, Rev. Mus. La Plata, 6, p. 278, 1895—Chilecito, La Rioja, Argentina; plumages: LILLO, Anal. Mus. Nac. B. Aires, 8, p. 175, 1902—Tucumán: BAER, Ornis, 12, p. 215, 1904—Santa Ana, Tucumán: BRUCH, Rev. Mus. La Plata, 11, p. 257, 1904—Salta, Oran: LILLO, Rev. Letr. Cienc. Tucumán, 3, p. 41, 1905—Tucumán: GIACOMELLI, An. Soc. Cient. Argent., 63, p. 283, 1907—Rioja, Argentina: FONTANA, Sist. Av. Reg. Andina, p. 7, 1908—Catamarca, Argentina: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1063, 1912—part, Paraguay, Uruguay, Argentina, Bolivia (Samaipata, Olgin, San José Misque): ARRIBÁLZAGA, Hornero, 2, p. 97, 1920—Chaco, Argentina.

Piranga flava KOSLOWSKY, Rev. Mus. La Plata, 6, p. 290, 1895—Catamarca, Argentina: DABBENE, Anal. Mus. Nac. B. Aires, 18, p. 376, 1910—Argentina: BERTONI, Faun. Parag., p. 62, 1914—Misiones, Argentina, and s. Paraguay: REED, Aves Prov. Mendoza, 1, p. 42, 1916—Mendoza oriental (errore): BERTONI, Hornero, 1, p. 190, 1918—Misiones, Argentina; descr. nest and eggs: idem, Anal. Cient. Par., 2, p. 246, 1918—Paraguay: TREMOLERAS, Hornero, 2, p. 23, 1920—Paysandu; Río Negro; Salto, Uruguay: SERIÉ and SMYTH, Hornero, 3, p. 53, 1923—Santa Elena (Entre Rios), Argentina: PEREYRA, Hornero, 3, p. 174, 1923—San Isidro, prov. B. Aires, Argentina: WETMORE, Bull. U. S. Nat. Mus., 133, p. 392, 1926—Resistencia, Las Palmas, Riacho Pilaga, Formosa, and Tapia, Tucumán, Argentina; Puerto Pinasco, Paraguay; habits and plumages.

Piranga Azarae BERTONI, Av. Nuev. Parag., p. 198, 1901—Paraguay.

(*Pyranga*) *azarae* DUBOIS, Syn. Av., 1, p. 658, 1902—Bolivia, Argentina, Paraguay, Uruguay: SHARPE, Hand-list, 5, p. 385, 1909—Bolivia, Argentina, Paraguay, Uruguay.

Piranga testacea LÖNNBERG (nec *Pyranga testacea* SCLATER and SALVIN), Ibis, 1903, p. 471—Colonia Crevaux, s. e. Bolivia.

Piranga azarae HARTERT and VENTURI, Novit. Zool., 16, p. 171, 1909—Tapia and Tucumán, Argentina.

(*Piranga*) *flava* BRABOURNE and CHUBB, Birds S. Amer., 1, p. 418, 1903—Bolivia, Argentina, Uruguay, and Paraguay.

Diagnosis.—Most nearly approaching *rosacea* and *hepatica*. From *rosacea* the males differ only in the somewhat more reddish, less orange, tone of coloration and the wider and more extensive grayish edges of the dorsal feathers. From *hepatica* the males differ by their redder tone, slightly smaller size, redder (less grayish or whitish) ear-coverts, and less grayish edges on the feathers of the back; eyelids more conspicuously pink. The females differ from *hepatica* by their less grayish back, less yellowish forehead, brighter yellow eyelids, and more olivaceous (less grayish or whitish) ear-coverts.

Habitat.—Described originally from Paraguay and since found in Uruguay and over north-central Argentina from Buenos Aires and Concepción del Uruguay to Tucumán and Chilecito, Rioja. It inhabits eastern Bolivia up to and including the eastern part of the Sierra de Cochabamba. Northeastward of the Sierra de Cochabamba it is replaced by *rosacea*; westward it probably meets the range of *lutea* somewhere in northwestern Bolivia, between Cochabamba and Misque. Reed (1916) cites Burmeister as authority for the occurrence of the race in Mendoza, Argentina, but Burmeister (1861), on the contrary, states positively that it does not extend westward to Mendoza.

Description.—Males above dull Corinthian Red or Madder Brown x Pompeiian Red, broadly margined from hind neck to lower back with gray which sometimes all but conceals the reddish subterminal areas of the feathers. Rump and upper tail-coverts brighter, with obsolete paler edges. Crown bright Pompeiian Red x Nopal Red or Jasper Red x Nopal Red, pinker just above the lores. Under parts Rose Doree x Coral Red; sides and flanks washed with gray. Auriculars about like crown, slightly streaked with whitish shaft lines; lores dusky; eyelids pale, pinkish. Wing 91-98 mm. (av. 95.6); tail 72-82 (av. 76.7); exposed culmen 16-18 (av. 16.9); culmen from base 20-22 (av. 21.4); tarsus 19-21.5 (av. 20.5).

Females grayish above, between Citrine-Drab and Yellowish Olive. Below dark Amber Yellow, olivaceous on sides and flanks. Forehead and crown more yellowish than the back; lores grayish white with bright yellow upper border; eyelids pale yellow; auriculars like back. Wing 90-92.5 mm. (av. 91.3); tail 72-81 (av. 76.4); exposed culmen 15-17 (av. 16); culmen from base 21-21.5 (av. 21.2); tarsus 21-22 (av. 21.5).

Remarks.—This race is distinguishable from all other forms occurring in South America by the heavy grayish edges on the feathers of the dorsal surface which conceal the subterminal red (or olive) to a degree depending on the amunnt of abrasion. The same character is present to a lesser degree in *rosacea* but occurs even more pronouncedly at the far northern end of the specific range, in *dextra* and *hepatica,* where it is accompanied by other distinguishing features. In fact, the resemblance of *flava* and *dextra* is so pronounced that it seems probable that these two forms represent the nearest approach to the ancestral type which has remained most constant at the extremities of the range and reached its highest degree of modification somewhere in the intervening region.

There is a certain amount of variability exhibited by specimens of the present race. Some are much deeper red (less rosy) than others. A male from Río Vermejo, Salta, Argentina, is only narrowly margined with grayish above and resembles some examples of *rosacea* in this particular. Another male from Embarcación, Orán, Argentina, is about the hue of *rosacea* below while above it is like typical *flava.* A male in the British Museum from San José Misque (examined for me by Dr. Hellmayr) also resembles *rosacea* below; otherwise it is exactly like a male from Uruguay. A single male collected by Barrows at Concepción del Uruguay, August 30, 1880, is quite pale below and may possibly indicate some such transition to *saira* of Brazil as occurs through *rosacea* in Bolivia, but it is badly worn and much of its pale coloration seems to be due to fading; the tone of red is still that of *flava,* not that of *saira.*

The seasonal development of *flava* may be determined provisionally from Bertoni's (1918) record of nest and eggs in October at Misiones. Given a breeding season in October, the annual molt should commence about the end of December or the first of January and be complete in early April. Wetmore (1926) records a young male from Tapia, Tucumán on April 9, just completing its molt from worn yellowish green to adult red. The most perfectly plumaged adult male which I have seen was collected on April 28 at Vipos, Tucumán, evidently after the completion of the molt. Examples taken between April and December show various degrees of wear and a specimen from Macho Muerto, Orán, Argentina, collected December 20, is quite badly worn, pale and dull, probably ready to commence its molt.

Wetmore gives the call note of *flava* as a not loud 'chip' or 'chu' and describes the flight as undulatory. Bertoni (1898) describes

the nest as being built of grass and leaves, lined with horsehair, in which were placed three eggs, white, speckled with cinnamon; the nest was built in a thicket. Barrows says that he observed the birds at Concepción only in the early spring and that they gave no evidences of breeding, being silent, sluggish, and not very wary.

Specimens examined.—Argentina: Tucumán, Vipos 1 ♂; Concepción 2 ♂ 2 ♀; Salta, Río Vermejo 2 ♂ 2 ♀[1]; Orán, Embarcación 1 ♂[1]; Macho Muerto 1 ♂[1]; Concepción del Uruguay 1 ♂[2]. Bolivia: Cordillera, Guanacos 3 ♂[1]; Pampas de Taperas (near Santa Cruz) 1 ♂[1].

Piranga flava rosacea Todd.

P(yranga) mississipensis LAFRESNAYE and D'ORBIGNY (nec *Tanagra mississipensis* GMELIN=*Piranga rubra*), Mag. Zool., 1837, cl. 2, p. 33—part, Chiquitos, Bolivia.

Pyranga Azarae D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 264, 1839—part, Chiquitos, Bolivia.

Pyranga saira SCLATER (nec *Tanagra saira* SPIX), P. Z. S. London, 1856, p. 124—part, Bolivia (part).

Pyranga azarae SCLATER (nec D'ORBIGNY), P. Z. S. London, 1879, p. 601—part, Chiquitos, Bolivia.

Piranga saira rosacea TODD, Proc. Biol. Soc. Wash., 35, p. 92, 1922—Palmarito, Río San Julian, Chiquitos, Bolivia; orig. descr.; type Car. Mus. examined.

Piranga saira saira TODD (nec *Tanagra saira* SPIX), Proc. Biol. Soc. Wash., 35, p. 92, 1922—part, Río Quiser. Velasco, Bolivia.

Piranga flava azarae HELLMAYR (nec *Pyranga azarae* D'ORBIGNY), Novit. Zool., 30, p. 241, 1923—Chiquitos, Bolivia; crit.

Diagnosis.—Males differ from those of *flava* by being more scarlet and less true red in coloration, being also less broadly margined with gray on the back. From *saira* they differ by reason of these grayish margins which are present, though narrow, in *rosacea* and absent in *saira*. From *lutea* the males differ by the presence of the gray margins and also by the different tone of red which is here duller and more orange. Females are less grayish than *flava*, paler than *lutea*, and nearest *saira* in tone of olive and yellow though grayer above.

Habitat.—Northeastern Bolivia, from Santa Cruz to the neighborhood of the Brazilian (Matto Grosso) boundary; northeast of the Sierra de Cochabamba.

[1]Specimens in Carnegie Museum, Pittsburgh.
[2]Specimens in Museum of Comparative Zoology, Cambridge.

Description.—Males above vary from Vinaceous-Rufous to Dragons-blood Red x Brick Red (in the type) and Dragons-blood Red x Pompeiian Red, with moderately narrow but distinct edges of gray on the back; rump and upper tail-coverts brighter, clearer. Crown brighter, Scarlet x Coral Red in the palest example, Scarlet x Dragons-blood Red in the type, and clear Dragons-blood Red in dark Río Quiser specimens. Lores grayish white; auriculars like hind neck, plain or faintly streaked with whitish. Below almost Grenadine Red in the type, Apricot Orange x Orange Chrome in the palest example, almost Scarlet-Red x Scarlet in dark specimens; flanks a little duller, washed with grayish. Wing 92-100 mm. (av. 96.2); tail 69.5-77 (av. 72.3); exposed culmen 16-17 (av. 16.4); culmen from base 21-22 (av. 21.3); tarsus 21-22 (av. 21.2).

Females above Yellowish Citrine or Light Yellowish Olive, with grayish edges on the interscapular feathers. Below Primuline Yellow to Wax Yellow x Amber Yellow, deeper on middle of chest which is sometimes deep Light Cadmium; flanks grayish or olivaceous. Wing 93-97.5 mm. (av. 94.5); tail 71-75 (av. 72.7); exposed culmen 16-17 (av. 16.5); culmen from base 21-21.5 (av. 21.2); tarsus 20-22.5 (av. 21).

Remarks.—The nomenclature of this race is involved in a tangle which requires some discussion. D'Orbigny (1839), in proposing the name *azarae*, gave a list of synonyms headed by Azara's "Habia punzó" and including Vieillot's *Saltator flavus*. He carefully explained his well-founded reasons for rejecting Vieillot's *Saltator ruber* (preoccupied) and Lichtenstein's *Tanagra mississipensis* (a distinct form), but he ignored the name *flavus*, aside from placing it in synonymy, without giving any reasons for such rejection; probably it was because of its foundation on a female and consequent inapplicability to the red males. He then proposed to rename the species under discussion *in honor of the first author to give a good description of it*, and applied the new name *azarae* in consequence.

In his discussion of distribution, D'Orbigny recorded an occurrence of the species from near Buenos Aires (erroneously regarding it as accidental), mentioned Azara's records from Paraguay, and stated that he, himself, had taken specimens also in the provinces of Chiquitos, Yungas, and Valle Grande, Bolivia. He gave the range of the species as lying on the eastern side of the Andes, from 15 to 34 degrees s. latitude. No attempt was made to separate the Bolivian birds as new, no type locality was given, and no type was designated.

It is apparent that the name *azarae* was proposed for Azara's two Paraguayan birds which Lafresnaye and D'Orbigny had already united in a single species under erroneous determination as *mississipensis* Lichtenstein and recorded from Chiquitos, as mentioned in D'Orbigny's synonymy. Nevertheless, D'Orbigny's Chiquitos specimens are still in the Paris Museum and one of them is marked as the type of his *azarae* (Hellmayr, Novit. Zool., **30**, p. 241, 1923). This specimen should not affect the status of the name *azarae* in view of the fact that the name was proposed as a new one for a species whose type locality already was Paraguay. The reference of Chiquitos specimens to this form was in error (in view of later discoveries), and the selection of one of them as a type was unjustifiable.

In 1922, Todd described his *rosacea* as a race of *saira* from Chiquitos. Hellmayr (1923) noted that D'Orbigny's Chiquitos specimens were different from his Buenos Aires specimen and from a Chaco male and used the name *azarae* for the Bolivian examples in the belief that it had been proposed as a new name for *mississipensis* Lafresnaye and D'Orbigny instead of for Azara's two birds. Recently he has kindly compared a paratype of *rosacea* with D'Orbigny's Chiquitos birds and informs me that they are identical. Therefore, if the name *azarae* were not a synonym of *flava* it would have priority over *rosacea*.

In describing *rosacea*, Todd compared it to north-Bolivian examples from the Río Quiser, province of Velasco (adjoining Chiquitos on the north), which he identified as *saira* and from which he separated the new race by its rather paler coloration. The proximity of Chiquitos to the Río Quiser on the north and to the Pampas de Tapera and Guanacos, Cordillera (where *flava* occurs) on the south, would leave *rosacea* under this arrangement with an extremely restricted range. However, the Río Quiser birds do not compare satisfactorily with Brazilian examples of *saira* from Matto Grosso, Maranhão, São Marcello, and Goyaz (12 ♂ and 6 ♀), but appear to be much closer to *rosacea*, from which they differ only by being a little darker in hue. Curiously enough, they are closer to *flava* in appearance and size than are the type and paratypes of *rosacea*. In any case the examples from the Río Quiser and Chiquitos together differ from typical Brazilian *saira* by having distinct grayish edges on the dorsal feathers while *saira* is clear red above without grayish margins. From *flava* this combined series differs by having the gray margins narrower and the general color more scarlet and less red.

Thus, if we extend the limits of *rosacea* to include all Bolivian birds found north and northeast of Santa Cruz to the borders of Matto Grosso, Brazil, we shall have a homogeneous and fairly well-marked race exactly intermediate between *saira* and *flava* geographically and taxonomically although of still quite limited distribution.

The type series from Chiquitos exhibits noticeable variability. The type is the darkest of all but is paler below than any specimen examined of the light-colored *macconnelli*. One of the paratypes is much paler and two other males are intermediate. In the series from the Río Quiser, one male has the head only slighter brighter than the back, showing an approach toward *lutea*. Another from Palmarito, Chiquitos shows a slight tendency in the same direction. Females also exhibit variability in the extent of the grayish dorsal margins and in the tone of yellow.

Plumages and molts appear to be about as in *flava*. The Chiquitos birds were taken in May and are mostly full-plumaged. The three pale specimens have a few scattered feathers of a deeper red than the rest of the plumage which may indicate some abnormality in the unusually pale coloration. One bird is acquiring some slightly deeper red feathers on the throat and middle of the crown while several occipital feathers are quite pale and worn, but the rest of the plumage is not especially abraded. This skin possibly may exhibit the completion of the annual molt.

The Río Quiser birds were taken early in June. One is in fresh plumage with no signs of molt; one has a few pale, abraded feathers on the lower breast; a third has a few feathers on the mantle somewhat fresher in appearance than the remainder. None of the specimens show evidence of regular molt.

Little is recorded about the habits of this race. D'Orbigny's statements concerning his *azarae* may refer to his Buenos Aires specimen of *flava* but probably are intended also for the individuals found at Chiquitos. He says that the birds frequented the tops of tall shrubs and low trees and were noisy and constantly in motion.

Specimens examined.—Bolivia: Palmarito, Río San Julian, Chiquitos 4 ♂ (incl. type) 3 ♀ [1]; Río Quiser, Velasco 3 ♂ 3 ♀ [1].

Piranga flava saira (Spix).

Tanagra mississipensis LICHTENSTEIN (nec GMELIN=*P. r. rubra*), Verz. Doubl. Berl. Mus., p. 30, 1820—São Paulo; ♂.

[1]Specimens in Carnegie Museum, Pittsburgh.

Tanagra misissipensis (sic) LICHTENSTEIN, l.c.—no loc.; ♀.

Tanagra saira SPIX, Av. Bras., 2, p. 35, pl. 48, fig. 1, 1825—"m(as)" (= ♀) and ♀; no loc. (subst. type loc. Rio, Berlepsch, 1908; subst. Caxias, Piauhy, Hellmayr, 1929); type Munich Mus.

Tanagra Mississipiensis LESSON, Traité d'Orn., p. 465, 1831—Brésil; ♀.

Ph(oenicosoma) Azarae CABANIS (nec *Pyranga Azarae* D'ORBIGNY), Mus. Hein., 1, p. 25, 1850—Brasilien.

Pyranga saira SCLATER, P. Z. S. London, 1856, p. 124—part, Brazil [Rio, Bahia, Minas, and S. Paolo (sic)]: idem, Cat. Am. Birds, p. 80, 1862—part, Rio de Janeiro: RIDGWAY, Proc. Acad. Nat. Sci. Philad., June, 1869, p. 131—Brazil: REINHARDT, Vidensk. Med. Naturh. Foren. Kjob., 1870, p. 429—Barbacena, Sete Lagoas, Curvelo, and Paracatú, Minas Geraes; Campinas and Rio Grande de Paraná, São Paulo: BERLEPSCH and IHERING, Zeitschr. Ges. Ornith., 2, p. 120, 1885—Linha Pirajá (=Neu Petropolis, Rio Grande do Sul): SCLATER, Cat. B. Brit. Mus., 11, p. 185, 1886—Brazil; Bahia, Pelotas, and Rio (trade skin?): IHERING, Ann. Estado Rio Grande do Sul, 16, p. 119, 1899—Mundo Novo, Brazil: idem, Rev. Mus. Paul., 3, p. 151, 1899—Estdo. S. Paulo: RIBEIRO, Arch. Mus. Nac. Rio Jan., 13, p. 186, 1905—Caminho do Couto, Serra do Itatiaya: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1063, 1912—Monte Alegre; Bahia; Rio (ex Sclater?); Ytarare and Ypanema, S. Paulo; Linha Pirajá; Goyaz, Cuyaba, and Chapada, Matto Grosso: SNETHLAGE, Journ. Orn., 61, pp. 484, 920, 1913—Serra do Ereré and Monte Alegre; ecol.: idem. Bol. Mus. Goeldi, 8, p. 449, 1914—Monte Alegre, Serra do Ereré, n. Amazonas, Maranhão: REISER, Denk. Kais. Akad. Wiss. Wien, Math.-Naturw. Kl., 76, p. 185, 1925—Bandeira and Facenda Riachoela: H. SNETHLAGE, Journ. Orn., 76, p. 535, 1928—Brazil; ecol.

Pyranga coccinea BURMEISTER (nec *Tanagra coccinea* BODDAERT=*P. r. rubra*), Syst. Ueb. Thiere Bras., 3, p. 171, 1856—Minas Geraes.

Pyranga Saira PELZELN, Orn. Bras., pp. 211, 371, 435, XLVII, 1871—Ypanema, Campo pantoso, Ytareré, Jaguaraiba, Porcos de Riva, Curytiba, Pitangui, Paraná, Jose Dias, Goiaz, Ponte alto, Cuyaba, S. Paulo, Bahia, Minas; ecol.

(*Pyranga hepatica*) var. *saira* RIDGWAY in BAIRD, BREWER, and RIDGWAY, Hist. N. A. Birds, 1, p. 434, 1874—Brazil.

(*Phoenicosoma*) *saira* HEINE and REICHENOW, Nomencl. Mus. Hein., p. 17, 1890—part, Brasilien.

Piranga saira ALLEN, Bull. Am. Mus. Nat. Hist., 3, p. 357, 1891—Chapada, Matto Grosso; plumages, molts, and breeding: HELLMAYR, Abh. K. Bay. Akad. Wiss., 2 Kl., 22, p. 670, 1906—s. Brazil; crit.: CHROSTOWSKI, Compt. Rend. Soc. Scient. Varsov., 5, pp. 487, 499, 1912—Vera Guarany, Paraná: RIBEIRO, Arch. Mus. Nac. Rio Jan., 24, p. 255, 1923—Retiro de Ramos, Serra do Itatiaya.

(*Pyranga*) *saira* DUBOIS, Syn. Av., 1, p. 658, 1902—Brésil, e. and s.: SHARPE, Hand-list, 5, p. 385, 1909—e. Brazil.

(*Piranga*) *saira* IHERING and IHERING, Cat. Faun. Bras., 1, p. 359, 1907—S. Paulo (Batataes, Campos de Jordão, Franca, Itararé): Matto Grosso

(Porto da Faya): BRABOURNE and CHUBB, Birds S. Amer., 1, p. 418—part, e. and c. Brazil.

?(*Piranga saira*) BERLEPSCH, Novit. Zool., 15, p. 116, 1908—part; subst. type loc. Rio.

Pryanga (sic) *saira* REISER, Denk. Kais. Akad. Wiss. Wien, Math.-Naturw. Kl., 76, p. 85, 1910—S. Ant. de Gilboëz, Bandeira, S. Maria, S. Philomena, Faz. Riachoelo, Piauhy.

P(yranga) saira HELLMAYR, Novit. Zool., 30, p. 24, 1923—w. Minas (Bagagem), Goyaz, Lower Amazonas (Serra do Ereré and Monte Alegre); crit.

Piranga saira saira HOLT, Bull. Am. Mus. Nat. Hist., 57, pp. 262, 321, 1928—Serra do Itatiaya (ex Ribeiro).

Piranga flava saira HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 14, pt. 8, p. 282, 1929—Maranhão (Codo, Cocos; Tranqueira; Fazenda Inhuma, Alto Parnahyba) and Goyaz (Philadelphia); subst. type loc. Caxias, Piauhy.

Diagnosis.—Males separable from *lutea* by brighter coloration, especially of the crown; from *rosacea* by somewhat purer red without grayish tips on the back; from *macconnelli* by rather deeper coloration. Females clearer than *lutea*, deeper than *macconnelli*, and without the grayish dorsal margins of *flava* or *rosacea*.

Habitat.—Campos regions of Brazil except at the extreme northern boundary.

Description.—Males above dark Brazil Red x Nopal Red to dark English Red; whole crown, especially forehead, brighter, Nopal Red x Scarlet to Scarlet, sometimes with an ill-defined superciliary line above lores to posterior border of the orbit. Lores dull whitish, tinged with red; auriculars like crown with whitish shaft lines not strongly developed; eyelids paler, pink. Whole under parts clear Scarlet-Red x Scarlet to Scarlet; flanks a trifle duller. Wing 89-98 mm. (av. 95.4); tail 71-79 (av. 74.1); exposed culmen 17-20 (av. 18.4); culmen from base 22-24 (av. 23.8); tarsus 19-23 (av. 21.5).

Females above Yellowish Citrine, brighter on the crown and forehead; sides of forehead above lores about Primuline Yellow, extending backward over eyes in a poorly defined superciliary. Lores soiled yellowish; auriculars like hind neck with poorly pronounced yellowish shaft lines; eyelids pale yellow. Whole under parts Primuline Yellow to Primuline Yellow x Wax Yellow; flanks more olivaceous. Wings 87-97 mm. (av. 91.8); tail 67-78 (av. 72.7); exposed culmen 18-19 (av. 18.5); culmen from base 22-23 (av. 22.2); tarsus 21-23 (av. 21.9).

"Young in first plumage are greenish gray above, narrowly streaked with dusky; below pale yellowish white, more broadly streaked with dusky" (Allen, 1891).

Remarks.—This race is distributed over most of Brazil in such portions as present suitable open areas in which there is a scattered growth of trees and bushes. In heavily forested localities the bird does not occur, and this precludes its existence in the upper Amazonian region which is almost exclusively of that nature. It ranges intermittently from São Paulo to Bahia, Rio Grande do Sul, Matto Grosso, Maranhão, and western Para where it crosses the Amazon to Monte Alegre and Serra do Ereré. The only record from Rio de Janeiro is questionable, being based on a trade skin of doubtful origin in the Sclater collection in the British Museum. The country about Rio, being heavily forested, is unsuitable for the species in any case, although clearance of the forest may allow the bird to become established there at some future time. Berlepsch was unjustified in suggesting Rio for the type locality of this race both for the above reason and because Spix is not known to have visited Rio and had no specimens from that region when he drew up his description of *saira*. Hellmayr's substitution of Caxias, Piauhy, is much preferable. The nearest approach to Rio in other published records is in Ribeiro's accounts from Caminho de Couta and Retiro de Ramos, Serra do Itatiaya.

A female from Santarem, in Field Museum of Natural History, is quite definitely referable to *saira*, and a male from Serra do Ereré (ex Mus. Goeldi), across the Amazon northward, has been examined by Hellmayr who pronounces it likewise unquestionably *saira*. Evidently the Amazon is not a racial boundary in the present instance.

Berlepsch and Ihering (1885) record a specimen of *saira* from Linha Pirajá, Rio Grande do Sul, which Berlepsch later (1912) described as larger and darker rose-red than examples from São Paulo, Matto Grosso, and Bahia, with wing 104 mm. and tail 84.5. In Berlepsch's manuscript notes another male is mentioned from Pelotas with wing 101 mm. and tail 83.5. No mention is made of any grayish dorsal margins in either example so that both are probably typical *saira* in coloration, although the unusually large measurements seem to indicate an approach toward *flava* which has been recorded from Uruguay immediately to the southward.

There is a certain amount of variation among the adult red males which tends to approach the characters of other adjacent forms.

Thus, a male from Codó, Cocos, Maranhão, is unusually pale and orange-tinted so as to be practically indistinguishable from certain examples of *macconnelli*, although it must be referred to *saira* because of its locality. It probably represents the extreme limit of variation in this direction. A male from Inhuma, Alto Parnahyba, Maranhão, is the darkest of the series and has less contrast than usual between the color of the back and that of the crown, showing an approach toward *lutea*. Matto Grosso males are closer to *rosacea* than are specimens from eastern Brazil, as would be expected from the proximity of the ranges.

Allen (1891) gives an interesting study of plumages and molts in Matto Grosso birds which, in its principal features, shows a close adherence to the rules demonstrated for *flava* and *rosacea*, although the chronology is slightly altered. According to Allen's conclusions, young birds in November and December molt into the plumage of the female and, at the following molt, the first year males acquire a variable proportion of adult male dress. Adult male plumage is not acquired by a single molt since males in September may have red, olive, or particolored livery. Adult males do not resume female plumage since some examples, in January, are molting from worn, faded red into fresher, brighter red.

In general this accords well with facts secured from other sources. In the series at hand the molt appears to have begun in November and to have ended late in March, although one July bird and one September specimen show considerable renewal of parts of the plumage which other examples taken in the same months do not show. The molting specimen taken in September, in Matto Grosso, is acquiring many new yellow feathers to replace worn red ones, but these renewals are irregular and probably represent accidental loss and replacement.

One November specimen from Tranqueira, Maranhão, sexed by the collector as a male, is in olive plumage molting into a deeper, more orange hue of the same color; the worn plumage is of full texture and does not suggest immaturity. A March bird from São Marcello is nearly all fresh red with a few old, worn, yellow feathers remaining on the breast. An April example from Matto Grosso, sexed as a male, is in perfectly fresh yellow plumage.

Specimens examined.—Brazil: São Marcello 1 ♂; Inhuma, Maranhão 1♂ 1♀; Codó, Cocos, Maranhão 1♂ 1♀; Tranqueira,

Maranhão 1 ♂; Philadelphia, Goyaz 1 ♂; Santarem 1 ♀; Chapada, Matto Grosso 7 ♂ 3 ♀ [1].

Piranga flava macconnelli Chubb.

?Pyranga azarae (*Fanagra saira*?) (sic) BONAPARTE (nec D'ORBIGNY), Bull. Soc. Linn. Normandie, 2, p. 31, 1857—Cayenne (coll. Deplanches); ♂.

"?(*Piranga saira* - - - = *P. haemalea*?)" BERLEPSCH, Novit. Zool., 15, p. 116, 1908—Cayenne (ex Bonaparte).

(*Piranga*) *saira* BRABOURNE and CHUBB (nec *Tanagra saira* SPIX), Birds S. Amer., 1, p. 418, 1912—part. Brit. Guiana (part).

Piranga saira macconnelli CHUBB, Ann. Mag. Nat. Hist., (9), 8, p. 446, 1921—Upper Takutu Mts., Brit. Guiana: idem, Birds Brit. Guiana, 2, p. 524, pl. 9, 1921—Upper Takutu Mts. and Quonga, Brit. Guiana.

Diagnosis.—Nearest to *saira* from which it is separable by an average of lighter coloration in both sexes.

Habitat.—Savanna country from the Takutu Mountains, British Guiana to the upper Rio Branco, Brazil; possibly similar country in Surinam and French Guiana.

Description.—Males with back Brazil Red x English Red to dark English Red; rump and upper tail-coverts clearer; top of head brighter, Scarlet to Grenadine Red, brightest above lores and on a poorly marked superciliary stripe. Lores soiled whitish; auriculars a little paler than crown with indistinct whitish shaft lines; eyelids possibly slightly paler, pink. Chin, throat, and rest of under parts Scarlet, faintly tinged with Scarlet-Red, to pale Scarlet x Grenadine Red; flanks a trifle duller. Wing 94-99 mm. (av. 96.3); tail 76-83 (av. 77.9); exposed culmen 19-19.5 (av. 19.2); culmen from base 22-23 (av. 22.3); tarsus 21-22 (av. 21.5).

Females with back Pyrite Yellow; upper tail-coverts paler; crown and nape Sulphine Yellow; forehead brighter, approaching Primuline Yellow, a little deeper laterally above lores and along a moderately well-defined superciliary; eyelids paler yellow. Lores dusky yellowish white; auriculars like nape, with paler yellow shaft streaks. Under parts Lemon Yellow tinged with Wax Yellow; flanks a little grayer. Wing 91-93 mm. (av. 92); tail 73-76 (av. 74); exposed culmen 18.5-19 (av. 18.8); culmen from base 22-22.5 (av. 22.2); tarsus 21.5-22 (av. 21.8).

Remarks.—This race is not very well marked since the darkest example at hand is a trifle darker than the lightest *saira* (an unusually

[1]Specimens in American Museum of Natural History, New York.

pale example from Codó, Cocos, Maranhão, which is mentioned under *saira*). Averages, however, are separable and extremes of both sexes are noticeably distinct. The form, therefore, may be allowed to stand.

Dr. Hellmayr has been kind enough to examine for me the type and other specimens of this form in the British Museum, including three males and one female from Quonga, one female from Annai, and the type from the upper Takutu Mountains. These specimens appear to be quite similar to the series in Field Museum of Natural History listed below. A young male from Quonga, taken November 1, has orange-red feathers on forehead, throat, and chest intermixed with the yellow plumage of the under side, which is brighter than in the Annai female.

In the series at hand, a male from Serra da Lua, taken March 26, is in process of molt and has the two central rectrices and one tertial on each wing newly acquired but with distinctly yellowish terminal portions; a few new feathers on the forehead and lores are red, replacing old, orange-tinted ones, and several new interscapulars are olive; most of the plumage is badly worn and faded red.

A December male from Bõa Vista has several new rectrices, all on the left wing and all yellowish toward their tips; the adjacent red quills are not badly worn.

A November male from Quonga shows molt beginning on the forehead, red replacing red.

Bonaparte's record of a male specimen obtained by Deplanches in Cayenne, which he appears to be unable to identify with precision, may belong to the present race. Berlepsch tentatively suggests *haemalea* as the probable identification, but the bird is more likely to be *macconnelli* (or *saira* as suggested by Bonaparte) if it came from any part of French Guiana visited by Deplanches, apparently only the immediate neighborhood of Cayenne. There are no other records from that region, which is very heavily forested and unsuitable as a habitat of the species, so that it is doubtful if the specimen was actually secured at that locality. If the specimen is still in existence in the Museum of Caen, where it was deposited, its identity might be ascertained.

Although the range of *macconnelli* adjoins that of *haemalea* on the north, the relationship to that form appears to be not directly but through the forms occupying Bolivia, Perú, Ecuador, Colombia,

and Venezuela. This is of especial importance in view of the fact that *haemalea* has been taken at Quonga where *macconnelli* also occurs. It will be discussed in greater detail under *haemalea*. Meanwhile the connective forms of the Andean territory will be taken up in their order.

Specimens examined.—British Guiana: Quonga 1 ♂. Brazil: Serra da Lua 1 ♂ 1 ♀; Bõa Vista 1 ♂ 2 ♀.

Piranga flava lutea (Lesson).

Pithylus luteus LESSON, l'Inst., 2, no. 72, p. 317, 1834—Callao, Perú; ♀.

Pitylus luteus LESSON, Journ. Nav. Thétis et Espér., 2, p. 326, 1837—Callao.

Phoenisoma Azarae TSCHUDI (nec *Pyranga Azarae* D'ORBIGNY), Arch. Naturg., 10, (1), p. 287, 1844—Perú.

Ph(oenisoma) Azarae TSCHUDI, Faun. Per., Aves, p. 207, 1846—Perú.

Phoenisoma lutea LESSON, Oevr. Compl. de Buffon, ed. Lévêque, 20 (=Descr. Mamm. et Ois.), p. 346, 1847—Callao, Perú; descr. ♀.

Pyranga saira SCLATER (nec *Tanagra saira* SPIX), P. Z. S. London, 1856, p. 124—part, e. Perú.

Pyranga azarae TACZANOWSKI (nec *Pyranga Azarae* D'ORBIGNY), P. Z. S. London, 1874, p. 514—Junin, Perú: idem, op. cit., 1877, p. 332—Palmal, Ecuador: idem, op. cit., 1879, p. 227—Tambillo, Perú; crit.: SCLATER, P. Z. S. London, 1879, p. 601—part, Cangalli and Cinti (part), Bolivia: TACZANOWSKI, P. Z. S. London, 1880, p. 195—Callacate, Perú: idem, op. cit., 1882, p. 14—Chirimoto, Perú.

Pyranga testacea SALVIN and GODMAN (nec SCLATER and SALVIN), Biol. Cent. Amer., Aves, 1, p. 292, 1883—part, Ecuador, Bolivia: SCLATER, Cat. B. Brit. Mus., 11, p. 184, 1886—part, Jima, Ecuador (?); Chirimoto, Perú; Cinti and Cangalli, Bolivia.

Pyranga Azarae TACZANOWSKI (nec D'ORBIGNY), Orn. Pér., 2, p. 495, 1884—Junin, Tambillo, Callacate, Chirimoto, Lechugal, and Nancho, Perú; descr.

Pithylus puteus TACZANOWSKI, Orn. Pér., 3, p. 513, 1886—Callao.

P(yranga), Azarae TACZANOWSKI, Orn. Pér., Tabl., p. 79, 1886—diag.

(Phoenicosoma) saira HEINE and REICHENOW (nec *Tanagra saira* SPIX), Nomencl. Mus. Hein., p. 17, 1890—part, Perú.

Pyranga testacea tschudii BERLEPSCH and STOLZMANN, P. Z. S. Lond., 1892, p. 375—Lima; orig. descr.: idem, op. cit., 1896, p. 345—La Merced, Perú: idem, Ornis, 13, pp. 82, 111, 1906—Santa Ana and Huaynapata, Perú: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1064, 1912—Songo, Quebrada Onda, Cangalli, and Cinti, Bolivia; Santa Ana, Huaynapata, Marcapata, La Merced, Chanchamayo, Junin, Tambillo, Callacate, Chirimoto, Cajabamba, Guayabamba, Suecha, Viña, Lima, and Lechugal, Perú: BANGS and NOBLE, Auk, 35, p. 461, 1918—Tabaconas and Huancabamba, Perú: CHAPMAN, Bull. U. S. Nat. Mus., 117, p. 121, 1921—Chauillay and Río

Comberciato, Perú: idem, Bull. Amer. Mus. Nat. Hist., 55, p. 677, 1926—Esmeraldas, La Puente, Portovelo, Zaruma, Punta Santa Ana, Casanga, Salvias, Lunamá, Alamor, Pullango, Cebollal, and Celica, Ecuador.

P(yranga) testacea putea BERLEPSCH and STOLZMANN, P. Z. S. London, 1892, p. 375, footn.

Pyranga tschudii SALVIN, Novit. Zool., 2, p. 5, 1895—Cajabamba, Chusgon, and Suecha, Perú.

(*Pyranga testacea*) Var. *Tschudii* DUBOIS, Syn. Av., 1, p. 658, 1902—Pérou.

Piranga testacea testacea RIDGWAY, Bull. U. S. Nat. Mus., 50, pt. 2, p. 86, 1902—part (Perú and Bolivia ?).

(*Pyranga*) *tschudii* SHARPE, Hand-list, 5, p. 385, 1909—c. Perú and Bolivia.

(*Pyranga*) *testacea* SHARPE, Hand-list, 5, p. 384, 1909—part, Ecuador.

(*Piranga*) *tschudii* BRABOURNE and CHUBB, Birds S. Amer., 1, p. 419, 1912—Perú, Bolivia.

Diagnosis.—More deeply colored than any other South American race except *desidiosa* and *haemalea;* clearer and deeper than *testacea;* darker and duller than *faceta.*

Habitat.—Perú, northwestern Bolivia, and Ecuador, in suitable territory.

Description.—Males with upper parts averaging Nopal Red x Garnet Brown (sometimes approaching Ox-blood Red); sides of forehead over the lores brighter, about Nopal Red; top of head a trifle brighter than the back. Lores dusky or dull whitish mixed with gray and more or less tipped with red; auriculars about like back with somewhat distinct white shaft lines; eyelids pale, Geranium Pink x Strawberry Pink. Below Scarlet-Red, lightly tinged with Spectrum Red on throat; breast near Nopal Red. Wing 88-98 mm. (av. 91.6); tail 71-84 (av. 76.6); exposed culmen 16-18 (av. 16.2); culmen from base 20-23 (av. 21.6); tarsus 20-22 (av. 20.7).

Females dull Citrine above, brighter on the head. Below Wax Yellow, more olivaceous on the flanks. Eyelids pale yellowish in contrast to the sides of face, Straw Yellow x Amber Yellow. Wing 84-91 mm. (av. 86.8); tail 73-79 (av. 75.6); exposed culmen 16-18 (av. 16.8); culmen from base 21-22 (av. 21.4); tarsus 19-22 (av. 20.7).

Remarks.—Berlepsch and Stolzmann in describing *tschudii* suggested the possibility that "*putea*" (=*lutea*) of Lesson might be the female of the same form. There is little doubt that this surmise is correct. Lesson's description is fairly exact and there is no other bird of the region of Callao to which it can apply. The fact that Lesson later placed the species in the genus *Phoenisoma* (the type of which is *Piranga rubra*) further substantiates the identification.

Lesson discusses *lutea* in his report on the birds collected during the years 1824 to 1826 on the voyage of the Thétis and Espérance, but there is no evidence that this voyage touched at Callao, the type locality of the race. He similarly treats *Pyrgita peruviensis* in the account of the voyage whereas in the original description in l'Institut, he says that it was collected in 1831. Presumably the type of *Pithylus luteus* had an origin other than the voyage of the Thétis and Espérance.

Nation did not find this species at Lima but Kalinowski collected two specimens there in 1899, one of which is the type of Berlepsch and Stolzmann's *tschudii*. I obtained it at Santa Eulalia a short distance inland from Callao. It is found throughout the subtropical zone of Perú and extends its range into the arid tropical as at Lima and Santa Eulalia where it frequents the lightly wooded valleys of the Río Rimac and its tributaries. It is recorded from La Merced, Chanchamayo Valley, which is humid tropical, although the single specimen from that locality (a young male taken in October) may have been secured on some of the immediately adjacent subtropical hillsides; I did not find the bird at La Merced. Chapman (1921) catalogues the race as an arid tropical form in the Urubamba region although he records one specimen from Río Comberciato which he calls humid tropical. The bird is not a regular inhabitant of the humid tropical zone, however, and is noticeably absent from all collections made in the lowland forests of northern Perú.

The distribution in Bolivia is somewhat problematical. In a report on Buckley's Bolivian collections (P. Z. S. London, 1879), Sclater and Salvin record "*Pyranga azarae*" as having been secured at Cinti and Cangalli, although the number of specimens is not given. Several years later (Cat. Birds Brit. Mus., **11**, 1886), Sclater lists two males from Buckley's Cinti collection as *azarae* and two males from Cinti and a female from Cangalli, also from Buckley, as *testacea*. These five skins in the British Museum have been examined for me by Dr. Hellmayr who reports that the two males identified as *azarae* are typical *flava* and the three *testacea* are typical *lutea*. If Buckley's records or data were reliable it would appear that *flava* and *lutea* both occurred at Cinti, in southern Bolivia, in spite of the lack of more recent substantiating evidence. On the other hand, Buckley's collections are believed to have arrived in London without other labels than numbered ones which the dealer who received the skins replaced by others containing details supplied

by the collector. As a result, data and specimens often became badly mixed, and no confidence can be placed in localities ascribed to many of Buckley's species not otherwise confirmed.

The specimens of *flava* probably are correctly labeled and may have come from Cinti since Berlepsch (1912) records this form from Samaipata, Olguin, and San José Misque, and there is a skin in the British Museum from Sucre. The specimens of *lutea* are more likely to have come from the Yungas of La Paz or Cochabamba where Buckley also collected and where *lutea* has been taken by other collectors.

So far as can be known precisely, the range of *lutea* in Bolivia embraces the Yungas of La Paz and Cochabamba, meeting that of *flava* and probably *rosacea* somewhere in the eastern Yungas of Cochabamba and thence extending northwestward into Perú.

North of Perú, *lutea* inhabits similar country in Ecuador. Most of the Ecuadorian records are from the arid tropical and subtropical regions around Zaruma and adjacent localities, and none whatever from the humid tropical regions of the north. At Esmeraldas it reaches sea level and it is probable that its range is more or less continuous from this point to southern Ecuador along the narrow stretch of coast line which Chapman (1926) shows to exist as a prolongation of the arid tropical zone, with a single break in the neighborhood of Valdivia.

Sclater's record of *"testacea"* from Jima, e. Ecuador, was based on a skin in Buckley's collection which was labeled in London by a dealer and may not have come from that locality. Aside from this doubtful one, there is no record from eastern Ecuador.

There appears to be no direct connection with the range of the species in Colombia, and in accord with this discontinuity of range I have found a corresponding disparity in the averages of Colombian and Ecuadorian birds. For this reason I have referred all Colombian birds to *desidiosa* with the exception of those found in the Santa Marta region, which belong to *faceta*.

Throughout Perú and Ecuador (and probably also northwestern Bolivia) the variations of this race show the relationship of adjacent forms. The palest individuals of *lutea* are not far removed from dark examples of *saira*, and dark *lutea* approach *desidiosa;* dull Peruvian specimens strongly suggest *testacea* and bright examples more resemble *faceta*. Ecuadorian skins do not differ appreciably from Peruvian ones.

A slight character has been detected in the series of *lutea* which appears to be of value in distinguishing it from *desidiosa*. The males of *lutea* have a rather distinct pinkish line extending over the lores to the eye and continued around the orbit on the tiny feathers of the eyelids which are distinctly brighter than the crown and auriculars. This pink line is quite noticeable in well-made skins but it is absent from *desidiosa*. Females have a similar character developed in yellow instead of pale red. In *testacea* the line is paler and less marked while in *figlina* the eyelids are more whitish.

Little has been recorded concerning the habits of *lutea*. Stolzmann's notes, printed by Taczanowski (Orn. Pérou), are brief and agree with my own observations. He says that the bird occurs in flocks both in bushes and higher trees and that its alarm note resembles that of a thrush, being unlike the fine whistle of most tanagers. The stomachs of the birds collected contained insects, principally Coleoptera.

The series of this race at hand does not give much information concerning the duration of the molt. A male from Chinchao, Perú, taken on November 8, is in the midst of a full molt, replacing worn olive and yellow by fresh red. A skin from Cullcui, Marañón River, taken December 13, is in full, fresh plumage, olive green, tinged with orange, and orange yellow. A May specimen from Hacienda Limón, Perú, is molting on head, body, wings, and tail, but in a very irregular manner. Whether this indicates a resumption of pre-nuptial molt, a difference in season between Hacienda Limón and Chinchao, or an adventitious renewal of lost plumage it is difficult to say. The irregularity of the renewals and the fact that none of the plumage is very badly worn suggest that the renewals are adventitious. An August male from Vista Alegre, Perú, is in moderately worn red, with irregularly placed yellow and ochraceous brown feathers somewhat fresher than the remainder; the bird evidently has replaced certain parts of the plumage since the previous full molt.

No breeding records are available for this race.

Specimens examined.—Perú: Santa Eulalia 2 ♂; Chinchao 2 ♂ 1 ♀; Vista Alegre 1 ♂ 1 ♀; Cullcui, Marañón R. 1 ♀; Hacienda Limón 1 ♂. Ecuador: Cebollal, Loja 1♂[1]; Zaruma 1♂ 2♀[1]; Alamor 1 ♂[1]; Esmeraldas 2 ♂ 1♀[1]; Punta Santa Ana, Porto Velho 1 ♀.

[1]Specimens in American Museum of Natural History, New York.

Piranga flava desidiosa Bangs and Noble.

Pyranga testacea SCLATER and SALVIN (nec SCLATER and SALVIN, 1868), P. Z. S. London, 1879, p. 502—Antioquia, Colombia: SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 292, 1883—part, Colombia: SCLATER, Cat. Birds Brit. Mus., **11**, p. 184, 1886- part, Concordia and Antioquia, Colombia.

Piranga testacea testacea RIDGWAY, Bull. U. S. Nat. Mus., **50**, pt. 2, p. 86, 1902—part, Colombia, Bogotá: CHAPMAN, Bull. Amer. Mus. Nat. Hist., **36**, p. 613, 1917—part, San Antonio, Cocal, Popayan, and La Sierra, Colombia.

(*Pyranga*) *testacea* SHARPE, Hand-list, **5**, p. 384, 1909—part, Colombia.

Pyranga testacea faceta BERLEPSCH (nec BANGS), Ber. V Int. Orn.-Kongr., p. 1064, 1912—part, Antioquia and "Bogota," Colombia.

Piranga testacea desidiosa BANGS and NOBLE, Auk, **35**, p. 461, 1918—La Maria, Dagua Valley, w. Colombia; type Mus. Comp. Zool. examined.

P(iranga) t(estacea) desidiosa HELLMAYR, Arch. Naturg., **90**, A, (2), p. 190, 1924—w. Colombia; crit.

Diagnosis.—Most like *lutea* but separable by the deeper red of the males and darker, more olivaceous green dorsum of the females; eyelids not paler nor brighter than the cheeks.

Habitat.—Both slopes of the western Andes of Colombia, in the neighborhood of the Cerro Munchique, and on the western side north to the Dagua Valley; probably also parts of the Magdalena Valley (Bogotá collections).

Description.—Males above between Garnet Brown and Nopal Red, sometimes inclining toward Cadmium, with the edges of the forehead somewhat paler; lores dusky gray or whitish with their color spreading a little over the extreme anterior part of the cheeks; auriculars red; eyelids red, not distinctly paler than the cheeks. Throat between Scarlet-Red or Carmine and Spectrum Red; breast slightly duller, nearer Carmine; belly paler, between Spectrum Red and Rose Doree; flanks Nopal Red; under tail-coverts like belly or a little paler. The breast, though deeper in color than the throat, is not strongly shaded with dusky. Wings and tail edged with dark Nopal Red x Pompeiian Red. Wing 91-98 mm. (av. 94.5); tail 71-79 (av. 75); exposed culmen 16-19 (av. 17.9); culmen from base 21.5-23.5 (av. 22.3); tarsus 19.5-21.5 (av. 20.3).

Females above Dull Citrine x Buffy Citrine; below Sulphine Yellow x Primuline Yellow, more olivaceous on breast and flanks, sometimes approaching Light Cadmium on throat and belly.

Wing 85-95 mm. (av. 90); tail 71-74 (av. 72.4); exposed culmen 16-18.5 (av. 17.1); culmen from base 22-22.5 (av. 22.1); tarsus 19-22 (av. 20.6).

Remarks.—The birds from the western slope of the western Andes are all very deeply colored. Those from the eastern slope of the same range are not so uniform and show light and dark extremes. Two from San Antonio, Río Cali, Cauca Valley, are deeper than the type; one from Cocal is lighter than some examples of *lutea;* others from La Sierra and Popayan are equal to some *lutea* but darker than most of that race while they are somewhat lighter than the dark extremes of *desidiosa.* On account of the apparent break in the continuity of range between Colombian and Ecuadorian representatives of the species, it seems more desirable to unite these intermediate Colombian specimens with *desidiosa* than with *lutea.*

It is probable that *desidiosa* is found as far east as the Magdalena Valley. Berlepsch records Bogotá among the localities for *faceta.* Hellmayr has examined the single male Bogotá skin in Berlepsch's collection (now in the Senckenbergian Museum of Natural History, Frankfort) and says (MS.) that it is much darker on the top of the head and back than a series of *faceta,* and darker, more fiery red, beneath. This would seem to place it in *desidiosa.* The skin must have come from some subtropical region and not from the immediate vicinity of the town of Bogotá, and it may have been from somewhere in the Magdalena Valley although recent collectors have not found it or any form of the species in that part of the country.

The material examined does not supply much information regarding molting periods, but it appears that *desidiosa* follows *lutea* and other southern races in this particular. A December and a January male are in fresher plumage than the rest of the series, a March bird is slightly more worn, and May and June specimens are noticeably more abraded.

Specimens examined.—Colombia: La Maria, Dagua Valley 4 ♂ 3 ♀ (including type)[1]; San Antonio, Río Cali 1 ♂[1], 1 ♂[2]; La Sierra, Cauca 1 ♂ 1 ♀[2]; Cocal, w. of Popayan 1 ♂[2]; Popayan 1 ♂ 1 ♀[2].

Piranga flava faceta Bangs.

Pyranga saira SCLATER (nec *Tanagra saira* SPIX), Cat. Amer. Birds, p. 80, 1862—part, Trinidad.

[1]Specimens in American Museum of Natural History, New York.
[2]Specimens in Museum of Comparative Zoology, Cambridge.

Pyranga hepatica LEOTAUD (nec SWAINSON), Ois. Trinidad, p. 291, 1866—Trinidad.

Pyranga haemalea SCLATER (nec SALVIN and GODMAN), Cat. B. Brit. Mus., 11, p. 185, 1886—part, Trinidad.

(*Phoenicosoma*) *saira* HEINE and REICHENOW (nec *Tanagra saira* SPIX), Nomencl. Mus. Hein., p. 17, 1890—part, Caracas, Venezuela.

Piranga haemalea CHAPMAN (nec SALVIN and GODMAN), Bull. Amer. Mus. Nat. Hist., 7, p. 323, 1895—Caura, Trinidad: PHELPS, Auk, 14, p. 364, 1897—San Antonio, Venezuela: ALLEN, Bull. Amer. Mus. Nat. Hist., 13, p. 168, 1900—Bonda, Onaca, Minca, Cacagualito, and Masinga Vieja, Santa Marta, Colombia.

(*Pyranga testacea*) Var. *Haemalea* DUBOIS, Syn. Av., 1, p. 658, 1902—part, Venezuela, Trinidad.

P(yranga) haemalea PENARD and PENARD, Vog. Guyana, 2, p. 449, 1910—part, Guyanas, Venezuela, and Trinidad.

Piranga faceta BANGS, Proc. Biol. Soc. Wash., 12, p. 141, 1898—Santa Marta, Colombia; orig. descr., ♂ (type in Mus. Comp. Zool.): idem, op. cit., 13 p. 104, 1899—La Concepción and San Miguel, Santa Marta, Colombia: ALLEN, Bull. Amer. Mus. Nat. Hist., 13, p. 121, 1900—Santa Marta (ex Bangs).

(*Pyranga*) *faceta* DUBOIS, Syn. Av., 1, p. 658, 1902—Santa Marta: SHARPE, Hand-list, 5, p. 385, 1909—Santa Marta, Colombia.

Piranga testacea faceta HELLMAYR, Novit. Zool., 13, p. 57, 1906—Trinidad (ex Leotaud); crit.: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1064, 1912—part, Santa Marta, Colombia; Cumaná, Venezuela; Trinidad: TODD and CARRIKER, Ann. Car. Mus., 14, p. 488, 1922—Minca, Cincinnati, and Las Vegas, Santa Marta, Colombia: HELLMAYR, Arch. Naturg., 90, A, (2), p. 188, 1924—Galipan and Loma Redonda, Venezuela; Rio Mamera near Caracas, Bermúdez (Campo Alegre, Quebrada Secca, and Los Palmales), Venezuela; Aripo Mts., Trinidad; crit.

(*Piranga*) *faceta* BRABOURNE and CHUBB, Birds S. Amer., 1, p. 418, 1913—Colombia, Venezuela, and Trinidad.

Diagnosis.—Males differ from *testacea* by being clearer in coloration, especially below where they are very slightly shaded on the breast; paler and more orange red than *lutea*. Females are brighter in coloration than most of the other forms, being paler and less golden than *saira*, more ochraceous than *macconnelli*, clearer, paler, and less golden than *lutea*, and most like *flava* in the tones of olive and yellow though without the grayish dorsal margins.

Habitat.—From the Santa Marta region of Colombia across northern Venezuela to Trinidad and south of Lake Maracaibo to San Cristóbal, Táchira. Except for Phelps's record from San Antonio, Monagas, just south of the watershed, it has been found in Venezuela only on the northern slope of the northern mountains.

Description.—Males above between Brazil Red and Nopal Red; forehead and upper margin of the lores a little brighter and paler; rump brighter. Lores grayish, tinged with red and with a suggestion of a lighter tint below the eye anteriorly; eyelids a little paler, pinkish; auriculars red with ill-defined pale shaft lines. Under parts between Scarlet and Brazil Red, slightly duller on the breast. Bill somewhat narrower and less swollen than in *testacea* but equaled in this respect by some specimens of *lutea*. Wing (including Bangs's measurements of the type and Hellmayr's measurements of fifteen skins in Munich and Tring museums—Hellmayr, 1924 and MS.) 85-93 mm. (av. 82.4); tail 72-80 (av. 76.4); exposed culmen 16.6-8.5 (av. 17.7); culmen from base (one skin) 22.5; tarsus (two skins) 19-20 (av. 19.5).

Females above Light Citrine or even yellower; whole top of head brighter, Sulphur Yellow x Pyrite Yellow. Breast Lemon Chrome; throat Empire Yellow x Pale Lemon Yellow; belly a little paler; flanks more olivaceous. Lores grayish; sides of head duller than the crown; eye ring bright, pale yellow. Wing (including measurements given by Bangs and a series of ten skins in Munich and Tring museums—Hellmayr, 1924 and MS.) 82-90 mm. (av. 85.6); tail 69-79 (av. 74.2); exposed culmen 15-18.5 (av. 17.4); culmen from base (one skin) 19.5; tarsus (one skin) 19.

Remarks.—The bright, clear coloration of both sexes of this form is its most striking characteristic, suggesting the clarity of *saira* and *macconnelli* but of a darker tone with more of an orange tint and with the top of the head not so strongly differentiated from the back. In addition to the localities given in the synonymy and in the subjoined list of specimens examined, there are records from La Tigrera, Venezuela (Tring Museum) and San Cristóbal and Puerto Cabello, Venezuela (Berlepsch coll., Senckenbergian Mus. Nat. Hist., Frankfort) (Hellmayr MS.).

The breeding season of *faceta* has not been indicated except by Chapman (1895) who mentions a male from Caura, Trinidad, taken April 21, with swollen testes. Todd and Carriker (1922) describe nest and eggs but give no dates. Allen (Bull. Amer. Mus. Nat. Hist., **21**, p. 279, 1905) does not record the breeding of this species but says that the general breeding season in the Santa Marta region is from about April 1 to the middle of June.

Bangs (1899) notes molting specimens but gives no specific dates although his series of *faceta* was secured between January and April.

Possibly the so-called molting specimens were in the peculiar mixed plumage which has the appearance of molt but which may persist for the entire season. Todd and Carriker (1922) record four specimens, taken from June 16 to August 2, which are said to show various degrees of transition from green to red plumage, but it is possible that these, too, are in a non-molting mixed plumage. A female at hand from Galipan, Venezuela, dated December 11, retains traces of immature plumage on scapulars, interscapulars, lower rump, lower throat, hind part of crown, posterior auriculars, etc., with the new plumage perfectly unworn; it is evidently in the final stage of the molt. The immature feathers which remain are comparatively unworn.

A specimen from Caracas, Venezuela, taken March 27 and sexed as a male, also has traces of immature plumage, but these are very badly abraded, even in contrast to the rather worn general plumage of olive and yellow. There are a large number of adventitious renewals also in evidence, chiefly on the right side, and abnormality of some sort is suggested. Two April males, from Caracas and Maracay, respectively, show no signs of molt. The Caracas bird is entirely red and slightly less abraded than the Maracay specimen which has a spot of olive on the rump and one of orange on the right flank, while several of the greater and middle upper wing-coverts on the left are olive-tinted. The maxillary tooth is very large in the Maracay male and almost absent in the Galipan female.

Todd and Carriker (1922) record *faceta* as abundant in the foothills and on the lower slopes of the San Lorenzo, mainly on the north and northwest sides, but rare in the Sierra Nevada although reported at Concepción and San Miguel by Brown; also rare at Las Vegas, apparently not favoring the excessive humidity of that side of the mountain. It is suggested that the original habitat was the dry forest of the foothills while as the forest was cut away it advanced to higher elevations, remaining lower down where the forest persisted. Several nests were found. Two were among the roots of overhanging banks by the roadside on mountain slopes; one was in a small shrub about two feet from the ground on top of a bank. The two eggs resembled those of *P. erythromelas*.

Specimens examined.—Venezuela: Maracay 1 ♂; Caracas 2 ♂; Galipan 1 ♀.

Piranga flava haemalea (Salvin and Godman).

?*Ph(oenicosoma) Azarae* CABANIS (nec *Pyranga Azarae* D'ORBIGNY) in SCHOMBURGK, Reise Brit. Guiana, 3, p. 668, 1848—part, Pacaraima Mts., British Guiana.

Pyranga haemalea SALVIN and GODMAN, Ibis, 1883, p. 205—Roraima, British Guiana: SALVIN, Ibis, 1885, p. 211—Roraima: SCLATER, Cat. B. Brit. Mus., 11, p. 185, 1886—part, Roraima: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1064, 1912—Roraima.

(*Pyranga testacea*) Var. *Haemalea* DUBOIS, Syn. Av., 1, p. 658, 1902—part, Guyane.

(*Pyranga*) *haemalea* SHARPE, Hand-list, 5, p. 385, 1909—Guiana (Roraima): BRABOURNE and CHUBB, Birds S. Amer., 1, p. 418, 1913—British Guiana.

P(yranga) haemalea PENARD and PENARD, Vog. Guyana, 2, p. 449, 1910—part, "Guianas—het Binnenland" (ex auctorum).

Piranga haemalea CHUBB, Birds Brit. Guiana, 2, p. 523, 1921—Mt. Roraima.

P(iranga) t(estacea) haemalea HELLMAYR, Arch. Naturg., **90**, A, (2), p. 190, 1924—British Guiana; crit.

Diagnosis.—Darkest and deepest of all races; resembling *desidiosa* but coloration deeper.

Habitat.—British Guiana: Mt. Roraima, the Pacaraima Mts. near the passage of the Cotinga River, and Quonga.

Description.—Males above Garnet Brown rather than Morocco Red; below Nopal Red rather than Brazil Red; throat paler, Scarlet-Red or Scarlet-Red x Rose Doree, in one specimen quite Rose Doree. No distinct pale eye ring but a few pale plumules on lower eyelid; top of head like the back, forehead not paler; auriculars uinform, like the crown but with the anterior part of the cheeks freckled with whitish. Chest duskier than the throat and middle of breast, while the throat is very much lighter than the pileum. Wing 96-98 mm. (av. 96.7); tail 78-80 (78.5).

Females closely similar to *desidiosa*. Above not certainly distinguishable but the throat brighter, approaching Primuline Yellow; no trace of yellow on the forehead. Wing 91-95 mm. (av. 93); tail 74-79 (av. 76.2).

The above descriptions are those of four males and four females from Roraima, and one male and one female from Quonga, in the British Museum; also one male from Roraima in Tring Museum. These specimens were examined for me by Dr. Hellmayr since no material is available in this country.

Remarks.—The distribution of this form and the meagre information available respecting its habitat render its position somewhat

curious. It appears to possess evident relationship with *testacea* and *desidiosa* and yet it shows no signs of approach to *macconnelli* whose range adjoins its own.

There are two specimens of *haemalea* in the British Museum from Quonga, male and female, and there is a male of *macconnelli* in Field Museum also from Quonga, and three males and one female in the British Museum from the same locality. All were taken in November, 1887, by Whitely. A female of *haemalea* from Quonga, in the British Museum, was taken the last day of October the same year. The male *haemalea* from Quonga and the male *macconnelli* in Field Museum are in full molt. Unfortunately there is little information available concerning the ecological associations of these two races. The normal habitat of *macconnelli* seems to be the campos or lightly wooded savannas, and the evidence, as far as it goes, seems to show that *haemalea* occupies the same sort of country. Whitely's specimens were taken at 3500 feet elevation, according to Salvin and Godman (1885), and on Roraima the savanna, broken by coppices, extends up the slopes of the mountain to an elevation of 5405 to 5890 feet before the forest actually commences, according to the accounts of im Thurn and of Perkins (Proc. Royal Geog. Soc., 1885, pp. 509, 529). Probably the records from the Pacaraima Mountains and Quonga refer to similar regions.

Two possible explanations may be advanced for the occurrence of these races together at Quonga, and both may be correct. Some tanagers are proved vagabonds such as *P. f. flava* is known to be in Argentina (White, 1883), and individuals of this and other races have been found in the forest in non-breeding time associated with vagabond troops of other birds. Thus in October and November, *haemalea* may wander a considerable distance from its breeding range and so enter the region occupied by *macconnelli* which also may wander. On the other hand, the relationship of *haemalea* to *macconnelli* evidently is not directly, but through *faceta*, *desidiosa*, *lutea*, *rosacea*, and *saira* and it is possible that, with a connection so distant, the two forms may meet on common ground and exist together without interbreeding. If so, the case is not without parallel in other species of birds.

Schomburgk's specimen, referred by Cabanis to *"Azarae,"* probably belongs here although it is just possible that it belongs to *macconnelli*. The specimen is lost so that its identity can not be determined. It came from the Cotinga River near the passage

through the Pacaraima Mountains, and there is consequent probability that the race to which it belongs will be found in the savanna country bordering the hills along the Brazilian-Venezuelan boundary, in which no collecting has been done.

There are no breeding records for *haemalea*. The molting examples collected in November indicate a possible breeding period in June or a little later. Further study of this interesting form in the vicinity of Roraima and on the borders of the range of *macconnelli* should bring out important information which at present is lacking.

Piranga flava testacea (Sclater and Salvin).

Pyranga hepatica SALVIN (nec SWAINSON), P. Z. S. London, 1867, p. 139—Santa Fé, Veragua.

Pyranga testacea SCLATER and SALVIN, P. Z. S. London, 1868, p. 388—Chitrá and Calovévora, Veragua: RIDGWAY, Proc. Acad. Nat. Sci. Philad., 1869, p. 133—part, Angostura, Costa Rica; Veragua: ZELEDÓN, Cat. Aves Costa Rica, p. 7, 1882—Costa Rica: SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 292, pl. 19, figs. 1, 2, 1883—part, Chontales, Nicaragua; Angostura, Costa Rica; Veragua: ZELEDÓN, Proc. U. S. Nat. Mus., **8**, p. 107, 1885—Costa Rica: SCLATER, Cat. B. Brit. Mus., **11**, p. 184, 1886—part, Chontales, Nicaragua; Costa Rica; Calovévora, Chitrá, and Santa Fé, Veragua: ZELEDÓN, An. Mus. Nac. Costa Rica, **1**, p. 110, 1887—Pozo Azul de Pirrís, Naranjo de Cartago (=Juan Viñas), and Cartago, Costa Rica: BERLEPSCH, Ber. V Int. Orn.-Kongr., p. 1064, 1912—Chontales, Nicaragua; Angostura, Piriri, Costa Rica; Chitrá, Santa Fé, Calovévora, Veragua.

(*Pyranga saira*) var. *testacea* RIDGWAY in BAIRD, BREWER, and RIDGWAY, Hist. N. A. Birds, **1**, p. 434, 1874—part, Angostura, Costa Rica; Veragua.

P(iranga) testacea RIDGWAY, Man. N. Am. Birds, p. 455, 1887.

Piranga testacea testacea RIDGWAY, Bull. U. S. Nat. Mus., **50**, pt. 2, p. 86, 1902—part, Nicaragua to Veragua: BANGS, Auk, **24**, p. 309, 1907—Boruca and Paso Real, w. Costa Rica: CARRIKER, Ann. Car. Mus., **6**, p. 855, 1910—Cerro de Santa Maria, La Vijagua, Cariblanco de Sarapiquí, La Hondura, and Boruca, Costa Rica.

(*Pyranga*) *testacea* DUBOIS, Syn. Av., **1**, p. 658, 1902—part, Nicaragua: SHARPE, Hand-list, **5**, p. 384, 1909--part, Nicaragua to Panamá.

Piranga testacea subspecies GRISCOM, Amer. Mus. Novit., **282**, p. 10, 1927—Cape Garachiné, Panamá.

Diagnosis.—Nearest to *lutea* from which it is separable by the duller, more brick-red coloration of the males and the slightly lighter under parts and more grayish olive upper parts of the females.

Habitat.—Central America from lower Panamá (Cape Garachiné) to northern Costa Rica (La Vijagua); probably also the province of Chontales, Nicaragua.

Description.—Males above Mahogany Red to near Morocco Red; forehead usually hardly brighter. Lores, point of chin, and anterior malar region dingy grayish with fine reddish tips; auriculars reddish like sides of breast but with inconspicuous whitish shaft lines; eyelids a little paler than the sides of the head, pinkish. Throat Coral Red x Dragons-blood Red to Brazil Red x Pompeiian Red; breast Dragons-blood Red x Brick Red to Morocco Red x Madder Brown; belly dull Peach Red x Grenadine; flanks duller. Wing 90-94 mm. (av. 91.8); tail 71-74 (av. 73); exposed culmen 18-19 (av. 18.2); culmen from base 21-24 (av. 22.2); tarsus 20-22 (av. 21). Griscom (1927) records the following measurements of sixteen specimens from Veraguas: wing 88.5-96.5 mm; tail 72-80; exposed culmen 17.5-19.2. A male from Garachiné, Panamá, measures: wing 87 mm.; tail 70.5; exposed culmen 16.

Females above Dull Citrine; below about Sulphine Yellow x Primuline Yellow. Lores, base of malar region, and point of chin whitish; auriculars like sides of breast but with inconspicuous hair lines of pale yellow. Wing 86.5-90 mm. (av. 88.1); tail 70-71 (av. 70.5); exposed culmen 18-19 (av. 18.3); culmen from base 21-24 (av. 22.2); tarsus 20-21.5 (av. 20.5).

Remarks.—The record of this race from the province of Chontales, s. Nicaragua, is based on a young male collected by Belt which has not been examined critically in recent years. Ridgway (1902) thinks it possible that this specimen may be intermediate between *testacea* and *figlina*; it should approach, rather, *albifacies* but may be typical *testacea.*

Carriker (1910) records *testacea* from the upper Caribbean slopes of Costa Rica (above 2000 feet), the central plateau (up to about 5000 feet), and the Pacific slope and lowlands, more especially in the southwestern part of the country. He states that it was found high up in the trees, seldom leaving the heavy forest, but says that he heard it at Boruca which is mixed woodland and savanna; Zeledón reports it from Cartago which is in a cultivated valley. It is probable that it is not restricted to heavy forest but that it also frequents clearings and the edge of woodland, at least in certain seasons, like the other members of the group.

Griscom's discovery of the bird at Cape Garachiné among scrubby growths in an arid tropical region, in February or March, demonstrates the tendency of certain members of this species to visit lower elevations during the non-breeding season. This record

extends the known range of *testacea* some distance southward. The measurements of the Garachiné specimen are slightly smaller than those of other recorded or examined specimens but the difference is small in view of the variation shown by other examples. Taken with the other specimens, the series has a range of measurement about equal to that of *faceta*.

The molting season includes the month of August as is shown by a single specimen, definitely in molt, taken in that month; January, February, and June examples are fresh or moderately worn but not molting. A specimen from Cerro Santa Maria, Costa Rica, taken January 7, appears to be slightly immature. The rectrices are more pointed than in adult birds, the flanks are very obscurely streaked with dusky, and the upper parts have suggestions of dusky centers on the feathers. This bird is probably in its first winter plumage, having molted the preceding August or thereabout.

Specimens examined.—Panamá: Chitrá, Veragua 1 ♂ 2 ♀[1]. Costa Rica: Boruca 1 ♂[1]; Cerro Santa Maria 1 ♂ 1 ♀[2]; La Vijagua 1 ♂[2]; Cariblanco de Sarapiquí 1 ♂[2].

Piranga flava albifacies subsp. nov.

Type from San José del Sacare, Chalatenango, Salvador. Altitude 3600 feet. No. 18,606 Collection of Donald R. Dickey. Adult male. Collected March 14, 1927 by A. J. Van Rossem. Original number 11,472.

Diagnosis.—Most nearly related to *P. f. figlina* from British Honduras and eastern Guatemala but size larger; general color deeper and redder (less scarlet or brownish red); sides of head whiter, with the lower part of lores, the anterior malar region, and the chin distinctly white, with grayish bases to the feathers; auriculars red or dusky red with prominent white shaft stripes, not brownish with obscure streaking.

Habitat.—Salvador to northern-central Nicaragua; probably adjacent parts of western Honduras.

Description of type.—Above between Morocco Red and Garnet Brown; crown a little brighter; back with indistinct paler margins on the interscapulars. Upper part of lores dusky grayish; lower part of lores, narrow chin spot, anterior malar region, and subocular

[1]Specimens in American Museum of Natural History, New York.
[2]Specimens in Museum of Comparative Zoology, Cambridge.

space white, with partially concealed grayish bases; auriculars Morocco Red, conspicuously streaked with white shaft lines; eyelids pink. Throat between Scarlet-Red and Rose Doree, with an indistinct dusky submalar stripe; breast slightly dusky Nopal Red, approaching dusky Brazil Red on sides and flanks; center of belly paler, approaching the color of the throat; under tail-coverts between dark Rose Doree and Peach Red. Wings Warm Blackish Brown; primaries edged externally with Brazil Red; secondaries, tertials, and upper wing-coverts edged with the color of the back; under wing-coverts Strawberry Pink x Geranium Pink; rectrices Dark Indian Red, edged externally with the color of the back. Maxilla (in dried skin) black; mandible bluish at base with a whitish median area and dusky tip. Feet dark brown. Wing 102 mm.; tail 80; exposed culmen 19; culmen from base 23; tarsus 22.5. Measurement of series: wing 94 (one specimen)—102 mm. (av. 98.7); tail 73-82.5 (av. 78.3); exposed culmen 18-19 (av. 18.4); culmen from base 21-24 (av. 22.6); tarsus 21-23 (av. 22).

Description of females.—Upper parts Yellowish Citrine; crown approaching Pyrite Yellow. Lores with upper part grayish; lower part with chin, anterior malar region and subocular space white; auriculars grayish olive with conspicuous white shaft lines; eyelids whitish. Throat deep Strontian Yellow with traces of a grayish malar line; breast Pyrite Yellow, passing into Citron Yellow or Strontian Yellow on belly; flanks like breast. Bill and feet as in the males. Wing 90-100 mm. (av. 93.7); tail 70-79 (av. 75.5); exposed culmen 16.5-19 (av. 17.8); culmen from base 21-23 (av. 22.2); tarsus 20-23 (av. 21.7).

Remarks.—A male from Matagalpa, Nicaragua, is duller and more orange-tinted than the type but darker than a Mt. Cacaguatique male. It is pure Morocco Red above and between Scarlet and Nopal Red below, with the throat between Scarlet and Rose Doree. It resembles *faceta* above except that the crown is duller (about like the back), the chest is not shaded with dusky, the throat is paler and clearer, and the whole under parts are more orange-tinted and less rosy. It has the distinguishing facial characteristics of *albifacies* and is larger than *figlina* so that it evidently belongs with the present race.

There is some variation among the series of Salvadorian specimens. One topotypical male is paler and pinker than the others and the Mt. Cacaguatique male is more orange-tinted, being light

Mahogany on the back, dark Brazil Red on the crown, Scarlet (x Nopal Red) on the throat, Grenadine x Scarlet on the belly, Grenadine on the under tail-coverts, and Hazel on the flanks.

The specimens examined were taken from December to March and there is none which shows signs of molt. A female taken on March 13 at the type locality is not quite adult. The upper wing-coverts are edged or tipped with buffy olive (whiter on the primary-coverts); the outer secondaries and tips of primaries are edged with grayish white; the innermost secondaries and tertials on one side only are edged with yellowish; the middle rectrices have been renewed while the outer ones are more worn.

Mr. Van Rossem, who collected the Salvadorian specimens, assigns an associational habitat of pine-oak, pine-prairie, and coffee for these birds. The pine-oak preference is shown by all races from this point northward.

Specimens examined.—Salvador: San Jóse del Sacare, Chalatenango, 3,600 feet 6♂ 4♀[1]: Mt. Cacaguatique, 3,500 feet 4♂ 4♀[1]. Nicaragua: Matagalpa 1♂; San Rafael del Norte 3♀.

Piranga flava figlina (Salvin and Godman).

Pyranga hepatica SCLATER and SALVIN (nec SWAINSON), Ibis, 1859, p. 15—e. Guatemala: COUES, U. S. Geol. Geog. Surv. Terr. (Hayden Surv.), Misc. Publ., **11**, p. 355, 1878—part, Guatemala: SALVIN, Cat. Strickl. Coll., p. 192, 1882—Guatemala: SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 291, 1883—part, Honduras: SCLATER, Cat. B. Brit. Mus., **11**, p. 185, 1886—part, Guatemala.

Pyranga testacea RIDGWAY (nec SCLATER and SALVIN), Proc. Acad. Nat. Sci. Philad., 1869, p. 133—part, Río Manati and Belize, British Honduras: BOUCARD, Liste Ois. Guat., p. 33, 1878.

(*Pyranga saira*) var. *testacea* RIDGWAY in BAIRD, BREWER, and RIDGWAY, Hist. N. A. Birds, **1**, p. 434, 1874—part, Río Manati and Belize.

Pyranga figlina SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 293, 1883—Manati R., Brit. Honduras, ♂ type in U. S. Nat. Mus. examined; Pine Ridge of Poctum, Guatemala, ♀: SCLATER, Cat. B. Brit. Mus., **11**, p. 185, 1886—Pine Ridge of Poctum, Guatemala; British Honduras.

Piranga figlina RIDGWAY, Proc. U. S. Nat. Mus., **10**, p. 585, 1888—Segovia R., Honduras.

Piranga hepatica AMERICAN ORNITHOLOGISTS' UNION, (nec SWAINSON), Check List, ed. 2, p. 256, 1895—part, Guatemala: idem, op. cit., ed. 3, p. 289, 1910—part, Guatemala: F. M. BAILEY, Birds West. U. S., rev. ed., p. 381, 1921—part, Guatemala.

[1]Specimens in collection of Donald R. Dickey, Pasadena.

(*Pyranga*) *hepatica* DUBOIS, Syn. Av., 1, p. 659, 1902—part, Guatemala.

(*Pyranga testacea*) Var. *Figlina* DUBOIS, Syn. Av., 1, p. 658, 1902—Guatemala and Belize.

Piranga testacea figlina RIDGWAY, Bull. U. S. Nat. Mus., 50, pt. 2, p. 87, 1902—c. Guatemala (Pine Ridge of Poctum) to s. Honduras (Segovia R.).

P(iranga) hepatica COUES (nec SWAINSON), Key N. A. Birds, ed. 5, 1, p. 349, 1903—part, Guatemala.

(*Pyranga*) *figlina* SHARPE, Hand-list, 5, p. 385, 1909—c. Guatemala to s. Honduras.

Piranga hepatica hepatica CHAPMAN (nec SWAINSON), Bird Lore, 20, p. 147, 1918—part, Guatemala.

Piranga hepatica oreophasma F. M. BAILEY (nec OBERHOLSER), Birds West. U. S., rev. ed., p. 541, 1921—part, Guatemala: idem, Birds N. Mex., p. 666, 1928—part, Guatemala.

Diagnosis.—Similar to *testacea* but larger, with auriculars distinctly brown or somewhat brownish with an admixture of reddish; a more or less distinct whitish semilunar patch below the eye; variable grayish edgings to the interscapular feathers. Females like *albifacies* but back more tinged with brownish; throat deeper yellow; flanks grayer, less olive; under tail-coverts greener, less yellowish.

Habitat.—British Honduras, eastern Guatemala, Honduras and the northern border of Nicaragua.

Description.—The type is Burnt Sienna above, paler and clearer on the upper tail-coverts, redder (approaching dark English Red x Brazil Red) on the top of the head. Lores dull, dusky gray; malar region paler, with an ill-defined semilunar patch below the eye somewhat paler, passing into dark Hazel on the auriculars which have only a suggestion of whitish shaft lines; posterior two-thirds of eyelids pinkish buff. Chin narrowly whitish; throat Grenadine Red x Scarlet, with a faint suggestion of paler streaks and with an ill-defined dusky submalar line; breast a little darker than the throat, about English Red, darker on the sides; middle of belly pale Grenadine Red x Scarlet; flanks duller, approaching Kaiser Brown; under tail-coverts dull English Red with paler tips and edges. Wings blackish brown, edged with light Burnt Sienna; lesser upper wing-coverts Bittersweet Pink. Tail Walnut Brown, edged like the back. Some of the outermost greater upper wing-coverts are finely tipped with pale buff, not strongly pronounced. Wing 95 mm.; tail 75; exposed culmen 19.5; culmen from base 23; tarsus 21.

Males from the Pine Ridge of Poctum are usually less orange and more pinkish than the type, with distinct grayish edges on the

interscapulars, a more distinct semilunar patch below the eye, and more pronounced whitish streaking on the auriculars. They vary from Dragons-blood Red x Nopal Red to Brick Red x Brazil Red above and Rose Doree x Scarlet to Scarlet-Red x Scarlet on the throat. Wing 88-100 mm. (av. 95.2); tail 70-80 (av. 76.2); exposed culmen 18-19.5 (av. 18.5); culmen from base 22-23.5 (av. 22.9); tarsus 21-22 (av. 21.9); measurements include those of one male from Sacklin, Nicaragua, in Munich Museum (ex Hellmayr MS.).

Females as described in the diagnosis. Wing 84-95.8 mm.; tail 64.3-78.7; exposed culmen 17-17.5; culmen from base 23; tarsus 20-21.3; measurements include those of two females from s. Honduras and one female from Guatemala cited by Ridgway (1902).

Remarks.—The type of this race is almost sufficiently distinct from northern Guatemalan specimens to make the identity of the two groups doubtful. The Poctum birds are pinker and less orange than the type, with a tendency toward grayish edges on the back not shown by the Manati River bird. They show a noticeable approach toward *dextra* of eastern Mexico but seem to be closer to the type of *figlina*. There is also a tendency toward *albifacies* in greater length of wing and tail. Whether or not examples from farther west in northern Guatemala (where none have yet been taken) would show further transition toward *albifacies* is open to question. From this general region, *figlina* ranges southward and eastward across Honduras to northern Nicaragua. A male from Segovia, southern Honduras, matches the colors of the type rather exactly, although it has an admixture of olive and yellow feathers which alters the general hue to a more orange tint; it is necessary to examine areas of unmixed plumage to obtain the true tone. Another male from the opposite side of the river in Nicaragua shows undoubted affinity to the type in its dull coloration, lightly streaked brownish auriculars, and small size. A male from the same region in the Munich Museum has been examined by Dr. Hellmayr who advises me that it is *figlina* and not *albifacies*.

As a matter of fact these three males and one female from the Segovia River show as much affinity to *testacea* as to *albifacies* and seem to connect those two races with *figlina*. It is apparent that the direct line of relationship is from *testacea* through *figlina* to *dextra*, while *albifacies* is an offshoot from *figlina*. The connection with *testacea* is somewhere in northern Nicaragua; that with *dextra* is near the boundary line of Guatemala and the state of Tabasco, Mexico.

The only available dated specimens of *figlina* were all taken in February. Consequently no particulars are at hand regarding plumages and molts; the February birds are in full, evenly colored plumage.

Specimens examined.—British Honduras: Manati River 1♂ (type)[1]. Honduras: Segovia River 1♂[1]. Guatemala: Pine Ridge of Poctum 5♂[1]. Nicaragua: Sacklin, Río Wanks (=Segovia River) 1♂ 1♀.

Piranga flava dextra Bangs.

Ph(oenicosoma) hepatica CABANIS (nec *Pyranga hepatica* SWAINSON), Mus. Hein., **1**, p. 25, 1850—Xalapa.

Pyranga hepatica SCLATER (nec SWAINSON), P. Z. S. London, 1856, p. 124—part, Orizaba: idem, op. cit., 1857, p. 213—Orizaba, Vera Cruz: idem, op. cit., 1859, p. 364—Jalapa, Vera Cruz: idem, Cat. Amer. Birds, p. 81, 1862—part, Jalapa: SUMICHRAST, Mem. Bost. Soc. Nat. Hist., **1**, pt. 4, p. 549, March, 1869—Vera Cruz, from coast up to 3000 meters: COUES, U. S. Geol. Geog. Surv. Terr. (Hayden Surv.), Misc. Publ., **11**, p. 355, 1878—part, refs.: SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 291, 1883—part, Jalapa, Orizaba, and Vera Cruz: SCLATER, Cat. B. Brit. Mus., **11**, p. 186, 1886—part, Orizaba and Jalapa.

Piranga hepatica CHAPMAN, Bull. Am. Mus. Nat. Hist., **10**, p. 40, 1898—Las Vegas, Vera Cruz: ? FRIEDMANN, Auk, **42**, p. 551, 1925—Brownsville, Texas.

Piranga hepatica dextra BANGS, Proc. Biol. Soc. Wash., **20**, p. 30, 1907—Jalapa, Vera Cruz (type in Mus. Comp. Zool.): PHILLIPS, Auk, **28**, p. 87, 1911—Matamoras, Rampahuila, Galindo, Carricitos, Montelunga, and Realito, Tamaulipas, Mexico: CHAPMAN, Bird Lore, **20**, p. 147, 1918—Vera Cruz to Nuevo Leon: OBERHOLSER, Auk, **36**, p. 75, 1919—Cerro de la Silla, Nuevo Leon; e. Mexico.

Diagnosis.—Nearest to *hepatica* from western Mexico and southwestern United States but a little smaller and somewhat darker; males clearer red above with narrower edges of gray on the feathers of the back; below about the same hue of Scarlet-Red or Scarlet. Females a little greener above. From *figlina* it is separable by darker red coloration of the males, with broader grayish dorsal edges and with a less extensive pale area on the sides of the face anteriorly.

Habitat.—Eastern Mexico from eastern Nuevo Leon through Tamaulipas, Vera Cruz, northern Puebla (Hauchinanga), extreme eastern Oaxaca, and Chiapas, probably to the southern point of Texas.

[1]Specimens in U. S. National Museum, Washington.

Description.—Males with back Brick Red, distinctly tipped with gray which wears off as the season advances; lower rump and upper tail-coverts clearer and brighter, about Hay's Russet, very narrowly tipped with gray; top of head brighter, Brazil Red inclining toward Nopal Red. Under parts Scarlet-Red x Scarlet to nearly pure Scarlet, paler and pinker in worn specimens; flanks brownish; breast, sides, flanks, and belly narrowly tipped with pale gray. Point of chin white; lores dusky gray; a semilunar patch of whitish below eye; auriculars dull grayish red with whitish shaft lines, more pronounced anteriorly; eyelids white or pale pinkish; subloral area dull whitish, connecting the lores and chin spot. Wing 93-105 mm. (av. 99.2); tail 76-83 (av. 79.4); exposed culmen 17-19 (av. 18.2); culmen from base 21-23 (av. 22); tarsus 21-22.5 (av. 21.5). Bangs's measurements of the type show wing 96 mm.; tail 74.5; culmen 18.5; tarsus 23.

Females Yellowish Olive x Light Yellowish Olive on back, slightly tipped with grayish; upper tail-coverts clearer, greener; top of head bright Sulphine Yellow, duller and darker on nape. Lores dusky grayish; eyelids white; subocular spot whitish; auriculars olive grayish; point of chin narrowly white. Throat, breast, and under tail-coverts deep Wax Yellow; belly paler; flanks more grayish. Wing 96-100 mm. (av. 98.6); tail 77-79.5 (av. 78.1); exposed culmen 17-19.5 (av. 18.1); culmen from base 21-23.5 (av. 22.1); tarsus 21.5-23 (av. 22.5).

Remarks.—This race is a very good intermediate between *hepatica* and *figlina*, having the grayish edges of various parts of the plumage reduced in width but not lost. It has been recorded (as *hepatica*) by Salvin and Godman from Guatemala on the basis of two specimens without exact localities, one of which, in the Strickland Collection (ex Constancia), probably came from the northeastern part of the country near Vera Paz. These specimens probably are like certain Poctum examples some of which might be referred almost as well to *dextra* as to *figlina* but which I have called *figlina* because of other more clearly marked examples from the same locality; consequently I have transferred these Guatemalan records from *hepatica*, which they cannot be, to *figlina*.

There is just a possibility that the name *hepatica* belongs to this eastern form instead of to the western race where it is usually applied. Swainson described *hepatica* from Real del Monte, Hidalgo, Mexico, a locality near Pachuca and in the eastern drainage although on the

central plateau. Bangs described *dextra* from Jalapa, Vera Cruz, in the same eastern drainage though near the coast. I can find no references to specimens from Real del Monte, except the type and it is possible that the form actually occurring there is really *dextra*, although *hepatica* inhabits the central plateau farther west. Until exact topotypes are available the question will remain open.

A male from Santa Catarina, Nuevo Leon, taken in mid April, is exactly similar in color and size to a number of males of *hepatica* from Coahuila, Jalisco, and Tepic, although the locality, being on the eastern side of the Sierra Madre del Oriente Mountains, is logically within the probable range of *dextra*. A young male (in olive plumage) and a female, both from Cerro de la Silla, Nuevo Leon, which, according to Oberholser (1919) is west of Santa Catarina, appear to be distinctly closer to *dextra*. It is possible that the Santa Catarina male is a vagrant *hepatica*, although it is dated near the breeding season, but it seems more probable that it is an unusually large and gray specimen of *dextra* showing the transition to the adjacent form of the western slopes.

There is a close resemblance between *dextra* and *flava*. The present form is redder, less orange brown above and less grenadine below, with narrower grayish margins above and somewhat more conspicuous grayish margins below, while the top of the head averages a little darker red. In worn specimens of both races these characters are much less apparent and certain examples are very much alike. A specimen of *dextra* from Oaxaca is strikingly similar to an Argentina example of *flava*. Its general tone of coloration is very slightly more orange or brownish and the auriculars are less reddish and more pronouncedly streaked with white; otherwise the two birds are inseparable.

Sumichrast (1869) records "*hepatica*" (=*dextra*) as "everywhere distributed from the coast of the Gulf to an altitude of at least 3,000 meters." I have seen no actual breeding records for this race. Specimens examined are dated January, March, April, June, August, and September and follow the plumage changes of *hepatica*, molting variously from July to September.

Friedmann (1925) recorded a specimen from Brownsville, Texas, which he identified as *hepatica*. From the geographical position of Brownsville in relation to Tamaulipas, Mexico, and the Davis Mountains, southwestern Texas, the nearest localities recorded in the respective ranges of the two races, it seems very probable that

this specimen belongs to *dextra* instead of *hepatica*. It is a straggler in any case but is more likely to have come a short distance north from Tamaulipas along the Gulf coast than to have wandered from considerably farther west. Unfortunately the specimen is said to be in poor condition and preserved in alcohol so that future identification is problematical. If it should prove to be *dextra*, a new subspecies is thereby added to the United States fauna.

Specimens examined.—Mexico: Oaxaca 1 ♂; Jico, Vera Cruz 2 ♂[1]; San Vicente Chiapas 1 ♂[1]; mountains near Tonata 1 ♂ 1 ♀[1]; San Cristóbal 1 ♂[1]; Gineta Mountains 1 ♂ 1 ♀[2]; Cerro de la Silla, Nuevo Leon 1 ♂ 1 ♀[1]; Santa Catarina 1 ♂.

Piranga flava hepatica (Swainson).

Pyranga hepatica SWAINSON, Philos. Mag., n. ser., **1**, p. 438, 1827—Real del Monte, Hidalgo, Mexico: SCLATER, P. Z. S. London, 1856, p. 124—part, Real del Monte: idem, op. cit., 1858, p. 303—La Parada, Oaxaca: BAIRD, Rep. Pac. R. R. Surv., **9**, p. 302, 1858—Zuñi and Fort Thorn, N. Mexico: idem, Cat. N. Am. Birds, no. 222, 1859: SCLATER, P. Z. S. London, 1859, p. 377—Talea, Villa Alta, and Choapam, Oaxaca: HENRY, Proc. Acad. Nat. Sci. Philad., 1859, p. 106—New Mexico: KENNERLY, Rep. Pac. R. R. Surv., **10**, p. 30, pl. 31, 1859—San Francisco Mts., Arizona: BAIRD, Birds N. Amer., p. 302, atlas, pl. 31, 1860: SCLATER, Cat. Amer. Birds, p. 81, 1862—part?, Mexico: idem, P. Z. S. London, 1864, p. 373—Valley of Mexico: COUES, Proc. Acad. Nat. Sci. Philad., 1866, p. 71—part, Fort Whipple, Arizona: SUMICHRAST, Mem. Bost. Soc. Nat. Hist., 1, p. 549, 1869—Vera Cruz: RIDGWAY, Proc. Acad. Nat. Sci. Philad., 1869, p. 132—crit.: DUGES, La Naturaleza, **1**, p. 140, 1870—Guanajuato: COOPER, Orn. Cal., p. 144, 1870—Arizona, etc.: COUES, Check List, no. 109, 1873: BREWSTER, Proc. Bost. Soc. Nat. Hist., **16**, p. 108, 1873—descr. eggs?: HENSHAW, Rep. Orn. Spec. Wheeler Surv., p. 108, 1874—Apache, Arizona; habits: BAIRD, BREWER, and RIDGWAY, Hist. N. Amer. Birds, **1**, p. 440, p. 20, figs, 9, 10, 1874: idem, op. cit., **3**, p. 508, 1874—eggs?: LAWRENCE, Mem. Bost. Soc. Nat. Hist., **2**, p. 274, 1874—Sierra Madre, between Mazatlan and Durango: HENSHAW, Zool. Expl. W. 100th Merid., p. 237, 1875—Apache, Willow Springs, Rock Cañon, Bowie Agency, Camp Crittenden, etc., Arizona; habits; descr. nest: LAWRENCE, Bull. U. S. Nat. Mus., **4**, p. 19, 1876—Guichicovi, Oaxaca; Gineta Mts.; Chiapas: COUES, U. S. Geol. Geog. Surv. Terr. (Hayden Surv.), Misc. Publ., **11**, p. 355, 1878—part, New Mexico and Arizona s. through Mexico; syn.; descr.; habits; eggs: RIDGWAY, Nom. N. Amer. Birds, no. 163, 1881: BREWSTER, Bull. Nutt. Orn. Cl., **6**, p. 68, 1881—Chiricahua Mts., Arizona: idem, op. cit., **7**, p. 146, 1882—Santa Rita Mts., Arizona; measurements: COUES, Check List, ed. 2, p. 42, 1882: SALVIN and GODMAN, Biol. Cent. Amer., Aves, **1**, p. 291, 1883—part, Real del Monte, Guanajuato, valley of Mexico, Sierra Madre, Vera Cruz, La

[1]Specimens in Biological Survey Collection, Washington.
[2]Specimens in U. S. National Museum, Washington.

Parada, Talea, Villa Alta, Choapam, Guichicovi, and Gineta Mts., Mexico; New Mexico; Arizona: BREWSTER, Auk, 2, p. 197, 1885—Santa Rita Mts.: DAVIE, Egg Check List N. A. Birds, p. 16, 1885—descr. eggs?: SCLATER, Cat. B. Brit. Mus., 11, p. 186, 1886—part, Arizona; Villa Alta and Mexico City, Mexico.

Pyranga azarae WOODHOUSE (nec D'ORBIGNY), Rep. Sitgreaves Expl. Zuñi and Col. R., p. 82, 1853—San Francisco Mts., Arizona.

(*Piranga*) *hepatica* GRAY, Hand-list, 2, p. 60, 1870: SHARPE, Hand-list, 5, p. 385, 1909—part, Arizona; Mexico.

(*Pyranga*) *hepatica* COUES, Key N. A. Birds, p. 112, 1872: SCLATER and SALVIN, Nom. Av. Neot., p. 22, 1873: DUBOIS, Syn. Av., 1, p. 659, 1902—part, Arizona; Mexico.

(*Pyranga hepatica*) var. *hepatica* RIDGWAY in BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, 1, p. 434, 1874.

P(*yranga*) *hepatica* COUES, Key N. Am. Birds, ed. 2, p. 318, 1884.

Piranga hepatica AMERICAN ORNITHOLOGISTS' UNION, Check List, p. 291, 1886—s. New Mexico and s. Arizona: FERRARI-PEREZ, Proc. U. S. Nat. Mus., 9, p. 140, 1886—Tezuitlan, Puebla; plumages, etc.: SCOTT, Auk, 5, p. 30, 1888—Santa Catalina Mts.; breeding; plumages: DAVIE, Nests Eggs N. Am. Birds, ed. 4, p. 337, 1889—descr. nest: MEARNS, Auk, 7, p. 260, 1890—Mogollon Mts., w. New Mexico; breeding in pine belt: ANTHONY, Auk, 9, p. 366, 1892—Apache, s.w. New Mexico: JOUY, Proc. U. S. Nat. Mus., 16, p. 779, 1893—Barranca Ibarra, Jalisco: FISHER, N. Am. Fauna, 7, p. 109, 1893—confluence of Beaverdam and Rio Virgin, n.w. Arizona: AMERICAN ORNITHOLOGISTS' UNION, Check List, ed. 2, p. 256, 1895—part, s. New Mexico and s. Arizona: NEHRLING, Our Nat. Birds, 2, p. 17, 1896: DAVIE, Nests Eggs N. Am. Birds, ed. 5, p. 408, 1898—descr. nest, eggs: RIDGWAY, Bull. U. S. Nat. Mus., 50, pt. 2, p. 84, 1902—part, Mexican plateau; Arizona; New Mexico: OBERHOLSER, Auk, 19, p. 301, 1902—Chisos, Davis, and Guadelupe mts., Texas: F. M. BAILEY, Birds West. U. S., p. 381, 1902—part, s.w. Texas, c. New Mexico, and Arizona: OSGOOD, Condor, 5, p. 149, 1903—Dragoon Mts., Cochise Co., Arizona: V. BAILEY, Auk, 21, p. 448, 1904—Mesa del Agua de la Yegua and Bernal Mesa, San Miguel Co., New Mexico: SWARTH, Pac. Coast Avif., 4, p. 47, 1904—Huachuca Mts.; breeding; habitat; plumages: REED, N. Amer. Birds Eggs, p. 279, fig., 1904—descr. and fig. egg: BEEBE and BEEBE, Two Bird Lovers in Mex., pp. 306, 395, 1905—Colima, Coquimatlán, Mexico: V. BAILEY, N. Am. Fauna, 25, p. 37, 1905—Guadelupe, Davis, and Chisos mts., Texas, transition zone: SWARTH, Condor, 7, p. 80, 1905—Santa Rita Mts., Arizona: idem, op. cit., 10, p. 114, 1908—Huachuca Mts., Arizona: SMITH, Condor, 10, p. 75, 1908—Whetstone Mts., Arizona: idem, op. cit., 11, p. 59, 1909—Cuernavaca, Morelos: AMERICAN ORNITHOLOGISTS' UNION, Check List, ed. 3, p. 289, 1910—part, n.w. Arizona, n.e. New Mexico and w. Texas: VISHER, Auk, 27, p. 286, 1910—Catalina Mts., Arizona, above 6,000 feet: LAMB, Condor, 12, p. 78, 1910—w. coast Mexico; San Blas, Tepic: SWARTH, Pac. Coast Avif., 10, p. 62, 1914—Arizona, transition zone; S. Francisco Mts., Mogollon, Santa Catalina, Santa Rita, Huachuca, Chiricahua, and White mts., Fort Whipple, Beaverdam and Vegas rivers: idem, Condor, 20, p. 21, 1918—c. Arizona, 6,000 feet upwards: WILLARD, Condor, 20,

p. 168, 1918—Huachuca Mts.: CHAPMAN, Bird Lore, **20**, p. 153, 1918—plumages: F. M. BAILEY, Birds West. U. S., rev. ed., p. 381, 1921—part, s. w. Texas, c. New Mexico, and Arizona: SWARTH, Condor, **26**, p. 189, 1924—San Francisco Mts., Arizona: WYMAN and BURNELL, Field Book Birds S. West. U. S., p. 202, 1925—transition zone of mountains, s. w. United States.

P(iranga) hepatica RIDGWAY, Man. N. A. Birds, p. 455, 1887: COUES, Key N. A. Birds, ed. 5, **1**, p. 349, 1903—part, s. Rocky Mountain region (U. S.).

Piranga hepatica hepatica SMITH, Condor, **19**, p. 17, 1917—Davis Mountains, Texas: CHAPMAN, Bird Lore, **20**, p. 147, pl., figs. 4, 5, 1918—part, c.w. Texas, c. New Mexico, n.w. Arizona, and tableland of Mexico; migrations: BANGS and PETERS, Bull. Mus. Comp. Zool., **68**, no. 8, p. 403, 1928—Chivela, Oaxaca.

Piranga hepatica oreophasma OBERHOLSER, Auk, **37**, p. 74, 1919—Pine Canyon, 6,000 feet, Chisos Mts., c. w. Texas; ♂: WETMORE, Condor, **23**, p. 63, 1921—Williams, Arizona; habits; note: F. M. BAILEY, Birds West. U. S., rev. ed., pp. 501, 541, 1921—part, Texas, New Mexico, and Arizona: idem, Birds N. Mex., p. 666, pl. 71 (part), map 59, 1928—part, n. w. Arizona, c. New, Mexico, and c.w. Texas south over tablelands of Mexico (various records from N. Mex.); descr.; habits; nest and eggs; migrations: BANGS and PETERS Bull. Mus. Comp. Zool., **68**, no. 8, p. 403, 1928—Chivela, Oaxaca, Mexico.

Diagnosis.—Nearest to *P. f. dextra* from which the males are separable by larger size and paler coloration, with broader grayish edges to feathers of the back. From *flava* the males are separable chiefly by the pale (duller and less red) auriculars with more white on the shafts of the auriculars, on the lores, below the eye, and on the chin. In general the red is brighter and less suffused with the gray which in *flava* not only tips the feathers but also affects the tone of red. Females are grayer above than those of *dextra*; they are almost inseparable from those of *flava* except by a little duller and less greenish auriculars, with more white on the subocular region, not always pronounced.

Habitat.—Western Texas, central New Mexico, and northwestern Arizona south through central and western Mexico (west of the Sierra Madre del Oriente range), east to Coahuila, San Luis Potosi, Hidalgo, Tlaxcala, and western Oaxaca; breeding throughout the range in the hills, migrating out of the United States in winter and descending sometimes to sea level.

Description.—Males with back light Hay's Russet or Brick Red, broadly tipped with gray; upper tail-coverts light Brick Red x Hay's Russet; top of head bright Coral Red x Light Brazil Red. Lores dusky gray with lower half whitish continued posteriorly as a whitish semilunar patch below eye; eyelids pale pink; anterior malar region white; point of chin narrowly white; auriculars dull red, tipped with gray and with pale shaft lines not prominent. Throat Scarlet

inclined to a more reddish tone; breast and belly a little paler, Scarlet x Peach Red, with narrow grayish tips; flanks pinkish gray; under tail-coverts Peach Red x Grenadine. In worn specimens the gray edges are worn off leaving the red color purer or clearer. In late breeding season the color may become considerably paler by fading. Wing 98-108 mm. (av. 103); tail 77.5-86.5 (av. 81.7); exposed culmen 16.5-21 (av. 17.9); culmen from base 21-25 (av. 22.7); tarsus 21-23.5 (av. 22.7).

Females about Grayish Olive on back, brighter and greener on rump and upper tail-coverts; top of head greenish Wax Yellow, brighter above lores, greener on nape. Lores dusky gray; eyelids and subocular semilunar patch whitish; chin usually narrowly white, rarely without white. Throat and breast Strontian Yellow to Primuline Yellow, sometimes tinged with Cadmium; belly paler; flanks grayish; under tail-coverts Wax Yellow or Strontian Yellow. Wing 94-104 mm. (av. 99.4); tail 75-87 (av. 81); exposed culmen 15-18.5 (av. 17.2); culmen from base 21-23 (av. 21.8); tarsus 20.5-22.5 (av. 21.7).

A young male has the back with centers of feathers broadly Clove Brown, margined with pale buffy white, giving a pronounced streaked appearance; rump and upper tail-coverts edged with pinkish buff, the central brown streaks narrower; top of head more Olive Buff, finely streaked with brown. Lores dusky gray; eyelids olive buff; subocular semilunar patch indistinct, whitish; auriculars dull olivaceous gray. Chin narrowly white becoming Wax Yellow on upper throat where it has brown apical streaks; lower throat duller, more buffy, with streaks heavier, (breast probably like lower throat but in the specimen at hand the olive-ochre feathers of the adult plumage are appearing); belly and flanks Ivory Yellow, lightly streaked on belly and heavily streaked on flanks; under tail-coverts Chamois. Tertials edged and tipped with white; upper wing-coverts tipped with buffy white; primaries and secondaries edged with Yellowish Citrine; rectrices rather pointed, tipped with a yellowish white bar.

Remarks.—The application of the name *hepatica* is open to some question as has been discussed under *dextra*. If *hepatica* should have to replace *dextra* the name *oreophasma* is available for the western race. The separation of *oreophasma* from a southwestern *hepatica* as a distinct race, as proposed by Oberholser (1919), appears to be not fully justified. As restricted by Oberholser, *hepatica* would occupy only central and southwestern Mexico "north to San Luis Potosi; west to central Jalisco (Guadalajara) and western Michoacan;

south to Guerrero and Oaxaca; and east to Oaxaca, Tlaxcala, and Hidalgo." In the breeding season, *oreophasma* would range from Texas, Arizona, and New Mexico south to central Jalisco and northern Coahuila, spreading slightly over the northern part of the range of *hepatica* in winter. The geographical line of separation – southwestward from Coahuila to Jalisco—would be rather curious since it crosses a region rather uniform in general characteristics without defining any well marked faunal region, although such separation is not impossible.

To make the matter difficult of determination, winter birds from central Mexico are useless for comparison since they may be only visitors to the region if the southward movement of the northern birds extends so far. Specimens taken at the breeding season are unsatisfactory because the plumage at that time is so worn and faded that the distinguishing tints may have become obliterated. The most suitable specimens for comparison are those collected during the annual molt after sufficient fresh plumage has been acquired to show the characteristic colors and before the birds have left their breeding ground, or else specimens in full plumage from the extreme ends of the winter ranges where a single form alone exists. Out of the three specimens of the supposed southwestern form which I have seen that answer these requirements, two are matched perfectly by several examples from outside the possible range of that restricted race, and the third has the plumage suffused with an orange tint (as sometimes happens in other races of *flava*) so as to be totally unlike the other two. This specimen has the back Mikado Brown, rather broadly tipped with gray but with an olivaceous tone to some of the feathers which gives a general impression of Wood Brown x Fawn Color; rump a little brighter; top of the head Brazil Red x English Red; throat Grenadine Red; breast and belly Flame Scarlet; under tail-coverts Salmon-Orange x Bittersweet Orange; flanks Tawny-Olive; wings and tail edged with Orange-Rufous; belly and flanks finely tipped with pale gray. These differences from typical "*oreophasma*" are not shown by any other specimen at hand.

In the matter of size, there is no pronounced difference although there is an average difference in the southern birds in the direction of the smaller *dextra*. In the series of males examined, "*oreophasma*" has wing measurements of 101-108 mm. and "*hepatica*" of 98-103 mm. (Oberholser records the type of "*hepatica*" as having a wing of 97 mm.). The exposed culmen of "*oreophasma*" measures 16-21 mm. and that of "*hepatica*" 17.5-18 mm., showing no difference

in average. Additional material might show a lessening of the small difference apparently exhibited in wing measurement; comparatively few specimens are available from southern localities. There is so much variability in size among members of the *flava* group that it does not seem advisable to recognize racial distinction solely on a slight average difference in measurements.

The range of *hepatica* thus may be given as the highlands of Mexico west of the Sierra Madre del Oriente and extending into Texas, Arizona, and New Mexico. In winter the northern birds retreat southward, but there is no direct evidence to show how far south they go or whether the individuals which breed in northern and central Mexico have any southward movement. The latest record from the United States is given by Swarth (1908) as October 25, southern Arizona, and the earliest by Swarth (1904) as April 11, Huachuca Mountains. A record from Alamor, Sonora, January 6, given by Oberholser (1919), indicates that this locality is within the winter range of the species and may be near the point where the southern migration ceases. There is probably a vertical downward movement in winter from the mountains to the lower elevations, sometimes to sea level, but the southern movement may not extend farther than is necessary to insure a mild climate for the wintering birds. If this is true, winter specimens from southern Jalisco, Michoacan, and Mexico are not migrants from the north but resident birds. Only a large series of early post-nuptial specimens from southern Mexico or reports from bird-banding operations can settle the various questions relating to the status and movements of the species in that region.

The series examined was collected variously in January, February, March, May, June, July, August, and October, showing the post-nuptial molt to take place between July and September as has been discussed in some detail in the introductory pages.

The preference of *hepatica* seems to be for pines or oaks at the edge of pines. In the United States it is largely restricted to the Transition Zone at breeding time from about 4,800-9,000 feet, although it descends lower during migrations. The nest is described by Henshaw (1874) as a frail structure made of coarse rootlets and dried plant stems, lined with finer materials, and placed usually on low oak branches. The eggs are said to be three or four in number, pale bluish green, lightly spotted with browns and purples chiefly around the larger end. Breeding is in June and July, according to

various authors. Henshaw gives the call note as composed of a repetition of the syllables "chuck, chuck"; Wetmore (1921) transcribes it as "chewp, chewp."

Specimens examined.—Arizona: Huachuca Mts. 6♂ 4♀; Santa Rita Mts., Madera Canyon 3♂. Mexico, Jalisco: Tuxpan 1♀; San Sebastian 2♂ 1♀[1]; Atenguillo 1♂[1]. Ocotlan 1♂. Coahuila: Sierra Guadelupe 3♂ 2♀[1]. Tepic: Santa Teresa 1♂ 1♀[1]. Michoacan: Mt. Tancitaro 1♀[1]. Mexico: Amecameca 1♀[1]. Guadalajara: Barranca Ibarra 1♂[2]. Oaxaca: Reyes 1♂[1]; near Tontepec 1♂[1]; La Parada 1?[1]. Guerrero: Omilteme 1♂[1]. Michoacan: Paticuaro 1♂[1]; Querendaro 1♀[1].

[1]Specimens in Biological Survey Collection, Washington.

[2]Specimens in U. S. National Museum, Washington.



FIG 1 VIEW AT BAIR WELLS TRANSJORDANIA TYPE LOCALITY OF PSEUDOCERASTES FIELDI SP NOV



FIG 2 JUVENILE SPECIMEN OF PSEUDOCERASTES FIELDI SP NOV FROM UM MUWAL IRAQ

FIELD MUSEUM OF NATURAL HISTORY
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REPTILES OF MARSHALL FIELD NORTH ARABIAN DESERT EXPEDITIONS, 1927-1928

BY

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REPTILES OF MARSHALL FIELD NORTH ARABIAN DESERT EXPEDITIONS, 1927–1928

BY KARL P. SCHMIDT

The Marshall Field North Arabian Desert Expeditions of 1927–1928, of Field Museum of Natural History, secured twelve specimens of lizards and snakes in Transjordania and Iraq. This material, which proves to be an accession of unusual interest, was collected in 1928 by Mr. Henry Field, Assistant Curator of Physical Anthropology in Field Museum of Natural History. A preliminary account of the route and archaeological work of this part of the expedition has been published by Mr. Field.[1]

Special thanks are due to the members of the British Royal Air Force and particularly to Group Captain Rees, V.C., officer commanding in Transjordania, who made the expedition possible.

Mr. Field has kindly supervised the preparation of the map (Fig. 1) which shows the approximate position of the localities from which specimens were obtained. The addition of a new and remarkable poisonous snake to the fauna of southwestern Asia as a by-product of archaeological investigations attests to Mr. Field's active and effective collecting in the interests of Field Museum, and I take pleasure in naming the new form in his honor.

The desert region of southwestern Asia is a meeting ground for several distinct faunal elements. Central Asia is represented by the westernmost extension of the agamid genus *Phrynocephalus*. From north Africa, in addition to very widespread forms, numerous species just enter the region, such as the horned viper *Cerastes cornutus*. A series of forms ranges from northwestern India to Egypt and Abyssinia, without being properly either Saharan or central Asian. The new viper, *Pseudocerastes fieldi*, represents these and illustrates the fact that this group of species is perhaps the oldest of the several faunal elements, being split up into distinct species and supplying the more conspicuous of the endemic forms.

All this complexity of distribution is characteristic of Asiatic zoogeography. The situation in Indo-China and Malaysia is one of

[1] Natural History, Vol. XXIX, pp. 33–44, 1929.

extreme complexity, just as it is in southwestern Asia at the opposite end of the continent. The faunal complexity is all the more striking because of the relative simplicity and uniformity of ranges discoverable in African animals, on the adjacent continent.

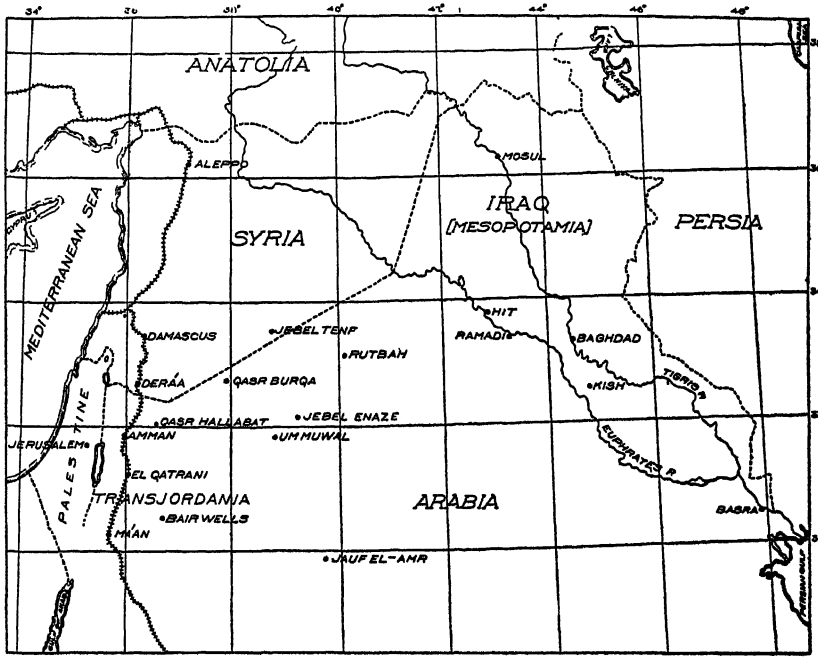


Fig. 1. Map showing location of places mentioned in the text.

LIST OF SPECIES

LIZARDS

1. **Agama ruderata** Olivier. Olivier's Agama.

Um Muwal, Transjordania, Nov. 25, 1927, one specimen. Arabic name *kadi el jibal.*

2. **Agama persica** Blanford. Persian Agama.

Qasr Burqa, Transjordania, April 19, 1928, one specimen.

Probably not distinguished from the preceding species by the Arabs.

3. **Agama stellio** (Linné). Stellio.

Hammam-es-Sarakh near Qasr Hallabat, Transjordania. April 29, 1928, one specimen.

Arabic name *hardun*. The enlarged spinose scales of the caudal whorls are distinctly larger (and hence fewer in number) than the corresponding scales in specimens from Mt. Sinai and from Moab, Syria, available for comparison in Field Museum's collections.

4. **Varanus griseus** (Daudin). Desert Monitor.

Qasr Hallabat, Transjordania, April 30, 1928, one specimen.

Arabic name *waral el jibal* or *waral el ard*. The bold pattern of the young, of black crossbars and lines on a grayish ground color, is well shown in this specimen. The adult assumes the paler coloration with indefinite pattern characteristic of desert animals.

A large lizard, doubtless of this species, was seen on the top of one of the volcanic peaks at Um Muwal by a member of the Expedition.

5. **Acanthodactylus robustus** Werner. Stout-bodied Desert Lizard.

Jebel Enaze, Transjordania, April 11, 1928, one specimen.

This species, described since the present specimen was collected, was based on a single specimen from Bir Molusi, about halfway between Damascus and Baghdad, presumably, therefore some distance to the north of Jebel Enaze.

Our specimen agrees in general habitus and in coloration with Werner's figure. It differs from his description in having the tail longer than the body instead of shorter. The lateral scales are very small, so that the dorsal scales across the body midway between the limbs number 88, the highest count in the genus.

Scale characters of F.M.N.H. No. 11072 (for comparison with Boulenger's tables): number of scales across middle of body 88; transverse series of ventral plates 30; plates in collar 8; gular scales from collar to chin-shields 28; femoral pores 23–27; tricarinate scales beneath fourth toe 24.

Measurements: from end of snout to vent 77.2 mm.; from end of snout to fore limb 28.8 mm.; length of head to posterior border of ear-opening 17.7 mm.; greatest width of head 14.2 mm.; greatest vertical depth of head 10.3 mm.; fore limb 25.7 mm.; hind limb 43.8 mm.; tail 84.0 mm.

This species may be compared with *Acanthodactylus tristrami* of the Lebanon as well as with *A. grandis* of the western border of the

Syrian desert. The feebly developed digital fringes suggest that it may be a relict from a former period of more humid conditions in this area, now confined to oases. The considerable number of species which have become known from the Syrian and Mesopotamian deserts only in the present century, and the small amount of information available as to their distribution, illustrates again the rather accidental nature of herpetological collecting, and the slow growth of our faunal knowledge of even the oldest known regions.

SNAKES

6. **Coluber ventromaculatus** Gray. Desert Racer.

Kish, Iraq, 1928, two female specimens. Arabic name (probably) *jeier*.

Dorsal scales 19–13, ventrals 217, subcaudals 99; total length 334 mm., tail 76 mm. (F.M.N.H. No. 11064). The second specimen is represented by head and tail; it has 93 subcaudals. Both exhibit the typical coloration.

7. **Spalerosophis diadema** (Schlegel).

Kish, Iraq, 1928, two male specimens, the larger of which was found during excavations at a depth of about two feet below the surface of a mound.

The dorsal scale count in both specimens (Nos. 11066 and 11067) is 29–31–19. The ventrals are respectively 228 and 218, the subcaudals 70 and 72. The first has nine ocular scales in the ring about the orbit on both sides, the second has nine on one side and six on the other.

The three species *diadema*, *arenarius* and *microlepis*, referred to the genus *Zamenis* by Boulenger and other authors, agree in having the prefrontals broken up, several loreal plates, temporals small and scale-like, and the anal plate single. They evidently constitute a natural group of species, and they are at least as distinct from other Old World species of *Coluber* (=*Zamenis* of Boulenger) as are several other groups currently recognized. I have accordingly referred the present species to *Spalerosophis* Jan, type *S. microlepis* Jan, as no genus appears to have been founded on the long-known *diadema*.

S. diadema, ranging from Morocco to Turkestan and the Indian Peninsula, will probably be found to include several recognizable subspecies. *S. diadema dolichospila* (Werner) has been described

from western Algeria, but the binomial form is retained in the present paper until a comprehensive study of the species can be made.

8. **Pseudocerastes fieldi** sp. nov.

Type from Bair Wells, Transjordania, F.M.N.H. No. 11061, adult male. Collected May 9, 1928, by Henry Field.

Range.—Known only from the type locality and from Um Muwal, 175 miles to the northeast, in eastern Transjordania.

Diagnosis.—A typical *Pseudocerastes* in having the rostral separated from the anterior nasal shield by small scales; scale covered horn-like projections over the eyes; lateral scales large and smooth; and ventrals not angulate. Distinguished from *P. persicus* Duméril and Bibron and from *P. bicornis* Wall by having only 21 rows of dorsal scales, two series of scales between the nasal and the rostral, and a lower number of ventrals and subcaudals.

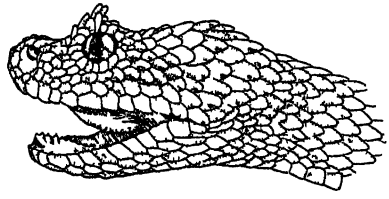


Fig. 2. Lateral view of the head of *Pseudocerastes fieldi* sp. nov., F.M.N.H. No. 11061, natural size

Description of type.—Body stout, with broad head, tail .11 of the total length.

Rostral broader than high, bordered by five scales above, separated from the large crescentic anterior nasal by two rows of scales; nasal separated from the labials by a single row of scales; eye surrounded by a ring of 15 subequal scales; a horn-like, scale-covered tubercle, directed outward and backward above the eye; two rows of scales between the labials and suboculars; four scales between the nasals, ten between the supraocular tubercles; most of the head scales tuberculate or swollen at the tip; upper labial border sharply serrate, the lower lip fitting into a groove in the inner face of the upper labials; upper labials 13–13; lower labials 14–14, three on each side in contact with the single pair of enlarged chin shields.

Dorsal scales with two apical pits, strongly keeled, the keels shorter than the scales and swollen posteriorly; several lateral rows nearly smooth, the outer entirely without keels; scale rows 25 (just behind the head), 22 or 21 (irregularly) at mid-body, and 17 just in front of the vent.

Ventrals 134, smooth, with no trace of sharp angulation or keel; subcaudals 35, the terminal six scale-like.

Coloration (in alcohol): general color pale yellowish brown, with about 30 transverse darker bars across the back; many of the dorsal scales, especially bordering the dark bars, are punctate with dark spots, as are the ends of the ventrals and the subcaudals; ventral surface otherwise uniform pale straw-color; sides of head darker brown, due to two very obscure oblique dark bars below the eye, which extend to the lower labials; tip of tail black, sharply distinct from the rest of the animal.

Measurements.—Total length 726 mm.; tail 81 mm.; greatest body diameter 38 mm.; diameter of neck 13 mm.; greatest width of head 28 mm.

Notes on paratypes.—The female specimen, No. 11062, has 138 ventrals, 38 subcaudals, 14 upper labials, 16 lower labials, and 17–18 scales in the ocular ring. The total length is 622 mm., tail length 74.

The coloration is much paler than that of the male, with the dorsal bars obsolete; the tip of the tail is black.

The juvenile specimen, No. 11063, is imperfect. Its color pattern is much clearer than in the two adult specimens; there are two lateral series of dark spots, the upper alternating with the dorsal bars; the scales of the dark spots tend to have light keels; one or two scales at the anterior border of each dark bar is light with a black tip, producing an ocellate effect. Tip of tail light.

Remarks.—The genus *Pseudocerastes* has previously been known from *P. persicus* Duméril and Bibron, from Persia and Baluchistan, and from *P. bicornis* Wall from Waziristan. The present species differs from the two previously known in having two rows of scales between rostral and nasal instead of one, a different scale count, and a much paler color-pattern. The species from Waziristan is as yet very imperfectly known. The new species extends the range of the genus far to the west.

Mr. Henry Field has kindly supplied the following note regarding the type locality of this species:

"Bair Wells are situated on the northern bank of the Wadi Bair. The gravelly bed of the stream contains water only during the rainy season. A long, low range of flint and gravel-covered hills lie on either side of the wadi, and the male and female adult specimens were collected from beneath a pile of stones, forming a Beduin grave, upon the summit of a hill about five hundred paces northeast of the wells."

An extraordinary character exhibited by these specimens is a facial pit, whose location, just above the nasal shield, is shown in black in the figure (Fig. 2). This pit or, perhaps better, pocket, extends under the skin of the upper side of the snout, its location plainly indicated externally by a swollen area on each side. The depth of the pocket is 4 mm. The other species of *Pseudocerastes* should be examined for indications of a corresponding pocket. The existence of so well-defined a structure, especially curious in view of possible comparability with the pit of the pit-vipers, would certainly warrant generic separation of a species to which it was confined. My suspicion that a similar pocket, or at least an indication of one, is to be found in the other species of the genus is based on the fact that the new form agrees so excellently with the forms previously known in the characters regarded as generic in *Pseudocerastes*.

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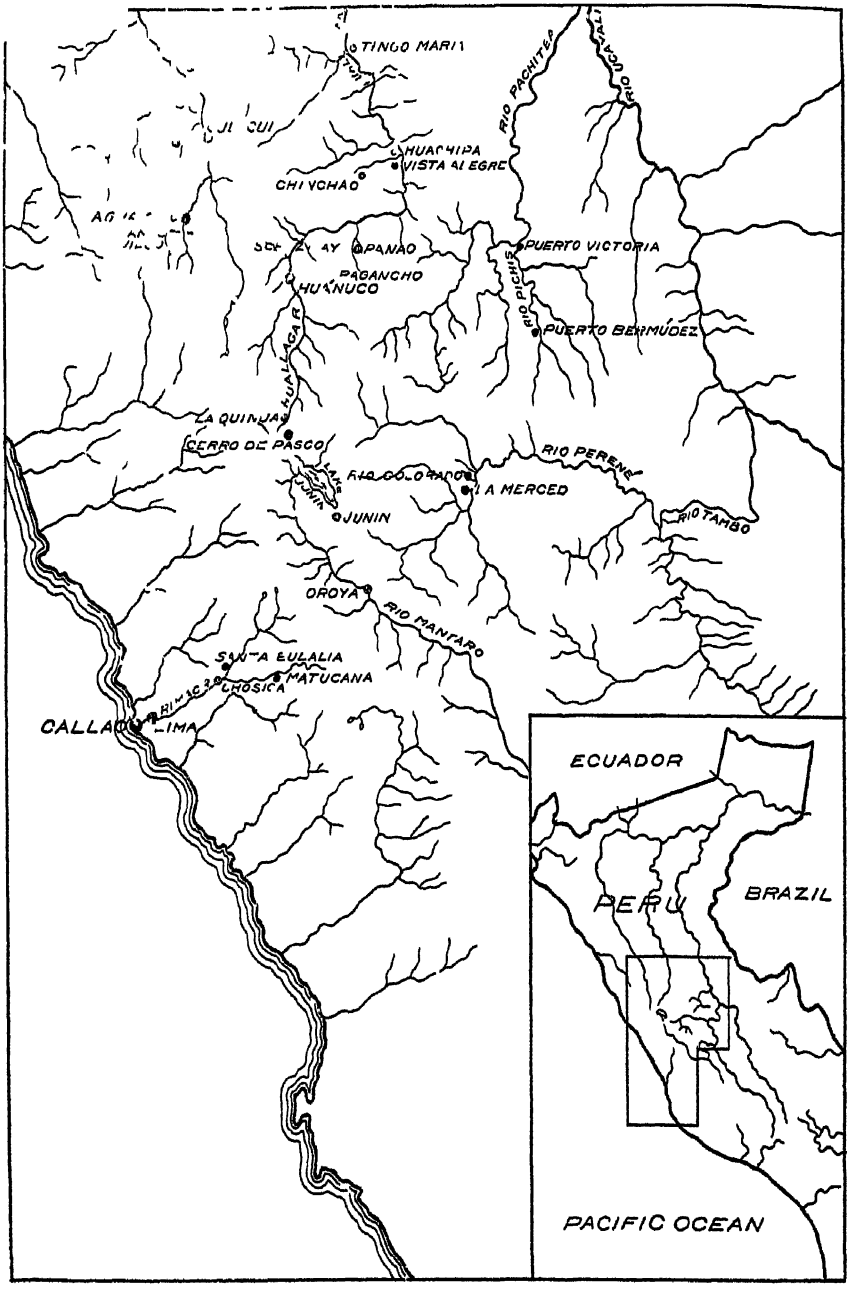
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MAP OF CENTRAL PERU SHOWING COLLECTING LOCALITIES

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BIRDS OF THE MARSHALL FIELD PERUVIAN EXPEDITION, 1922–1923

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BIRDS OF THE MARSHALL FIELD PERUVIAN EXPEDITION, 1922–1923

BY JOHN T. ZIMMER

Early in 1922, Field Museum of Natural History despatched an expedition to Perú for the purpose of collecting zoological and botanical specimens. As ornithologist of the expedition, I devoted my principal efforts to the bird life of the region and secured 1,497 specimens, to which Mr. Edmund Heller, mammalogist of the party, added a few skins from localities I did not visit. The following report is concerned with the collection of Peruvian birds secured during the course of the work, with comparative notes on allied species or subspecies from other parts of Perú or from adjoining countries. Descriptions of some of the new forms found in this material have been published in advance (Field Mus. Nat. Hist. Publ., **12**, No. 4, 1924; *t. c.*, No. 8, 1925; *op. cit.*, **17**, No. 1, 1929; Proc. Biol. Soc. Wash., **40**, pp. 207–210, 1927; and *op. cit.*, **42**, pp. 81–98, 1929). The following new names are used in the present account:

	Page
Aglaiocercus nom. nov.	290
Catamenia analis insignis subsp. nov.	460
Colonia colonus niveiceps subsp. nov.	368
Diglossa sittoides decorata nom. nov.	416
Jacana spinosa peruviana subsp. nov.	253
Ochthoeca leucophrys interior subsp. nov.	365
Thlypopsis ornata media subsp. nov.	452
Todirostrum cinereum peruanum subsp. nov.	384

Since the operations of the various sections of the expedition were carried on independently, I shall not attempt to exceed the description of my own activities. I left Chicago on March 19, 1922, and arrived at Callao on April 3. As soon as arrangements could be completed, I moved up the Rimac Valley a short distance to the town of Chosica, still in the arid tropical zone, using this as a base from which to visit Santa Eulalia and Vitarte. On April 27, I ascended by rail to the town of Matucana, considerably higher up the valley in the arid subtropical zone, and a week later continued the ascent and passed over the divide and up the Junín Plateau to Cerro de Pasco at the northern end of the table-land in the *puna* region.

On May 8, I began the descent of the Huallaga Valley, passing the head of the river just below Cerro de Pasco, and stopping for about a week at La Quinua, a short distance below, in the temperate zone about at timber line. Thence three days on horseback with pack train brought me to Huánuco in the semiarid subtropics, which constituted a base camp for future operations until the close of the year.

Three extended trips were made out of Huánuco. The first comprised an ascent of the mountains on the right bank of the Huallaga River on which two camps were placed, at 10,500 and 12,200 feet, in the humid temperate zone. Passing over a shoulder of the mountain, I next descended into a valley near the town of Panao and established a camp on the slopes of Mt. Pukagaga (the Quechua name for Quebrada Colorado), also in the humid temperate zone though with more decided subtropical affinities. Thence I descended into the Huallaga Valley again and returned toward Huánuco, with an extended pause at Hacienda Dispensa where the natural conditions of the countryside were less disturbed than at Huánuco itself.

On August 12, I again passed through Dispensa, crossed the river and the mountains on the left bank and entered the valley of the Chinchao River which I descended to near its junction with the Huallaga, at the junction also of the subtropical and humid tropical zones. Here I collected at two principal points: Vista Alegre, on the right bank of the Chinchao and at the lower margin of the subtropical zone; Huachipa, across the river in the tropical forest. October 20, I returned in the direction of Huánuco and, from October 21 to November 20, collected at Hacienda Vilcabamba in the neighborhood of the town of Chinchao, in the subtropical zone just below the cloud forests. Thence I retraced my route to Huánuco.

On December 5, I crossed the mountains on the left bank of the river near Huánuco through the Higueras Valley to the Marañón which I descended on the right bank to a small place known as Cullcui or Cullquish in the arid temperate zone. This place was reached on December 9. On December 17, I returned up the valley a short distance, crossed the river and ascended the Aguamiro Valley to the town of Aguamiro, reached the following day, and climbed the escarpment to the high plateau which contains the ruins of the pre-Inca city of Huánuco Viejo. Here I remained until December 25 when I began the return to Huánuco by a circuitous route which crossed the Marañón somewhat higher up and joined

the Higueras Valley at the place where I had left it on the outward journey.

Being unable to find transport across the lowlands to the Pichis River, in the Ucayali drainage, I returned to Cerro de Pasco and down the plateau to Oroya, whence I descended the eastern slope of the mountains into the Chanchamayo Valley. Passing through the town of La Merced, I established headquarters at the Hacienda Pampa Americana on the Río Colorado, a short distance below the town, in the humid tropical zone.

February 26, I began a journey with pack train over an outlying spur of the mountains to the Pichis River which I reached seven days later, continuing my journey by canoe to Puerto Bermúdez the following day. From March 5 to 20, I remained at Puerto Bermúdez, in the humid tropical forest. March 20, I boarded a steam launch bound for Iquitos and reached that destination on March 26 after collecting a very small number of specimens at Orellana and San Enrique en route. From Iquitos I descended the Amazon to Manaos where I obtained passage on a steamer bound for New York, stopping at Pará on the outward journey, and reached Chicago on April 28, 1923.

A detailed description of each of the important collecting stations follows:

Chosica.—April 13–17, 25, 27, 1922. 2,800 feet. Arid tropical. Situated in a narrow valley between barren, rocky hills, with the level bottom-land devoted to gardens and cotton fields. The hills in April were dry and clothed with cacti and other such desert vegetation, but the banks of the river and the irrigation ditches supported thickets of somewhat more luxuriant growth.

Santa Eulalia.—April 18–24. 3,500 feet. Arid tropical. Similar to Chosica but slightly higher in elevation and better wooded. Much of the valley floor was occupied by orchards of oranges, soursops, guavas, and such fruits, though the desert vegetation persisted on the hillsides. Many Inca ruins were scattered about the valley and numerous terraces of ancient construction were still in good repair on the hills.

Vitarte.—April 27. 1,300 feet. Arid tropical. A cotton and sugar cane plantation between Chosica and Lima. Not radically different from Chosica.

Matucana.—April 28–May 4. 7,700 feet. Arid subtropical. Hereabouts the valley is narrow and the hillsides very steep and

rugged, but the cloud line is much closer and the countryside accordingly greener. The snow line, also, is closer and the air much cooler and fresher than at Chosica. Several cold mountain streams rush down from the heights and have their banks overgrown with vines and bushes where they are not occupied by boulders, but the steep slopes of the adjacent hills are covered with cacti and similar plants.

Cerro de Pasco.—May 5–7. 14,419 feet. *Puna* zone. High, grassy plains above timber line.

La Quinua.—May 8–16. 12,100 feet. Humid temperate. Just below timber line. Scattered patches of gnarled and twisted trees occupy the heads of the canyons, with more bushy growth along the river banks and grassland on the hilltops. Frost and cold rain or hail were daily occurrences.

Huánuco.—May 19–30. July 31–August 11, November 23–December 4, and December 29, 1922–January 12, 1923. 6,600 feet. Semiarid subtropical zone. The town lies on the banks of the Huallaga River in a broad valley surrounded by hills reaching upward to the *puna* zone. The valley floor is very fertile but the near-by hillsides, at the lower elevations, are dry and barren or set with cacti and other desert plants. In May and August the climate was dry and hot during the daytime, though cool at night; in November the rainy season was imminent while at the close of December it was on in full force, and the once dry hillsides were green and flourishing while much of the lowland was boggy. When not qualified by other stated elevations, the locality "Huánuco," as used in the following pages, means this locality or the near-by Hacienda Dispensa which is mentioned below.

Huánuco (Schizmay).—May 30–June 17. 10,500 feet. Semiarid temperate and semiarid subtropical. This designation marks a camp on the slopes of the mountains near Huánuco at the given elevation. It proved to be excellent collecting ground. It lies on the northern slope of the hills with a high, rocky ridge to the eastward and one to the westward, with high peaks at the back from which a small stream tumbles down the slope to the Huallaga River. The hillsides are grassy, where not cultivated, and are provided with patches of scattered woodland. Along the stream and its affluents are dense tangles of bushes and trees interlaced with rattans, blackberry vines, and other creepers. The climate was warm at midday, considerably colder at night with occasional frost, and rains were frequent though not of long duration. The region may be classed, in general, as

semiarid or even humid temperate with finger-like projections of the humid subtropics extending upward along the streams from the lower elevations.

Huánuco (*Pagancho*).—June 17–30. 12,200 feet. Humid temperate. This region was cold and bleak. The temperature often remained below 50° F. in the middle of the day and dropped below freezing at night. Rain and hail were of almost daily occurrence and the fog, which settled in the lower valleys at night, began to lift at sunrise and often blanketed the hills until nearly noon. The mountain tops near-by are at an elevation of about 14,000 feet and are rocky and barren of all but a few patches of grass, though the hollows and pockets at the heads of the ravines support a growth of gnarled and stunted trees, draped with moss and creepers and saturated with moisture from the nightly fogs. These pockets are full of pitfalls for the unwary foot, with many crevices between the rocks concealed by moss and precariously bridged by rotting logs, but they furnish a home for many species of birds not found elsewhere. Some of the deeper hollows hold an alpine lake of icy water rimmed with black cliffs and emptying over the lower side or through a fissure in the rocks. An occasional bog marks the origin of one or other of the numerous brooks. The hillsides near camp were clothed with grass and bushes and an occasional tree.

Panao (*Mt. Pukagaga*).—July 2–18. 10,300 feet. Humid temperate and subtropical. Not unlike the mountains near Huánuco at 10,500 feet, but less arid and with a more pronounced subtropical tendency. The river is larger than that at Schizmay, and is bordered by heavier woods, with numerous tree-ferns and solid jungles of rattan at several places. Temperate zone forest occurs in detached areas on the upper slopes of the mountains, alternated with grassland and extensive patches of ferns. Though not immediately adjacent to the town of Panao, this collecting site is in the same extensive valley and at about the same elevation, though on a different slope.

Huánuco (*Hacienda Dispensa*).—July 20–31. 6,400 feet. Semiarid subtropical zone. A hacienda between Valle and Huánuco on the banks of the Huallaga River. The conditions are equivalent to those at the town of Huánuco, 200 feet higher in elevation, except that they are less disturbed by human activities. There is a fringe of woodland along the river with a few beds of cat-tails and an extensive jungle of giant *Equisetum* ten or twelve feet high.

Cultivated fields in the bottom of the valley and dry, cactus-covered hillsides complete the picture. Since the region is identical with Huánuco in its faunal conditions, I have not attempted to segregate the records from this locality, although they may sometimes be recognizable by the dates.

Vista Alegre.—August 15–September 1, October 8–20. 4,100 feet. Subtropical zone. The coca plantation of this name lies on the right bank of the Chinchao River a little above its junction with the Huallaga River. Above the hacienda the hills reach upward through the subtropical zone with alternating grassland and dry woods; below and across the river is the tropical forest. Although most of the species of birds found here are subtropical forms, numerous tropical species occur here also since the forest on the right bank of the river is continuous with that on the left bank and the river does not form an effective barrier. The climate is hot and humid, without much relief at night.

Huachipa.—September 2–7. 2,800–4,600 feet. Humid tropical. The camp at this place was within the edge of the tropical forest beyond the large clearing of Huachipa plantation. Though higher than Vista Alegre it is in sight of that place across the river. The bottoms of the deep canyons are nearly two thousand feet below, and collecting was done throughout the region. The plantation clearing furnished a modification of territory as did the second growth springing up at the edge of the woods, but the basic collecting ground was the heavy, dark, gallery forest, varied here and there by denser second growth where a fallen tree had permitted the entrance of a little sunlight. Vines, rattans, epiphytes, and parasitic growths were numerous and bird life was abundant. Many of the so-called vagabond troops were found and followed with profit—large flocks of mixed species, from the terrestrial ant-wrens to the arboreal tanagers and a host of others between, patrolling the woods and searching the vegetation minutely from top to bottom. Whereas various tropical species common at Huachipa were found sometimes at Vista Alegre, there were but few species of the subtropical zone (such as *Elaenia pallatangae* and *Myiarchus tuberculifer atriceps*) which had found their way across the river to the clearings on the Huachipa side. The climate at Huachipa was more uncomfortable than at Vista Alegre, being more enclosed and with less movement of air.

Chinchao (*Hacienda Vilcabamba*).—October 21–November 20. 5,700 feet. Subtropical zone. The immediate vicinity of the hacienda

is similar to Vista Alegre without the tropical zone incursions, but there is a reversed influence from the cloud forest that tops the nearby hills. At the season of my visit, the rains were beginning in earnest and the steep hillsides of the hacienda were perpetually deluged so that there was little distinction between humid and arid regions except in the density of the vegetation. Collecting was done in both types of country.

Cullcui (*Marañón Valley*).—December 9–17. 10,400 feet. Arid subtropical zone. A tiny settlement on the right bank of the Marañón bounded by steep dry hills. Cactus, agave, and similar desert plants are in preponderance, even along the banks of the river where they form impenetrable thickets. A small tributary entering the Marañón, a short distance below the settlement, has developed a more luxuriant growth of bushes, trees, and grass that forms a humid oasis in the desert. The faunal affinities of the region are to the western slope of the coastal range and a number of species of birds are common to Cullcui and Matucana, though the latter locality is less arid than Cullcui.

Huánuco Viejo.—December 18–25. 12,700 feet. *Puna* zone. The locality is above timber line on a broad plateau with a few rounded peaks rising a little above it. It is covered with grass and watered by a little stream which finds its origin in an extensive marsh, not far from the ruins of the ancient settlement. The climate was continuously cold and wet.

Río Colorado (*Chanchamayo Valley*).—January 25–February 26, 1923. 2,300 feet. Humid tropical zone. Mixed forest and cultivated fields. At the time in question the rainy season was well advanced and every gully was a running stream while many level areas were inundated. Though in the Ucayali drainage, the Chanchamayo Valley is closer in faunal affinities to the tropical Huallaga valleys than to the Upper Amazonian area of northeastern Perú and the upper Ucayali River.

Puerto Bermúdez.—March 5–20. 1,100 feet. Humid tropical zone. Upper Amazonian region. This locality is at the head of steamer navigation during the rainy season and above it during the dry season. When I visited it, the region was extensively inundated and difficult for collecting. Except for small cultivated clearings, the countryside is heavily forested with considerable undergrowth along the banks of the river and at the edges of the fields. The faunal affinities are with the Upper Amazonian region and some of

the subspecies found at Puerto Bermúdez occur also on the Río Solimoës in Brazil.

It is impossible to name the numerous persons whose thoughtfulness and kindness smoothed the difficulties of the expedition's work in a foreign country, but to all of them I am grateful for their services. To Mr. Marshall Field, whose generosity made the expedition possible, and to Mr. H. B. Conover, who supplied a portion of the funds in return for some of the game-birds obtained on the trip, I am grateful for the opportunity given to study the Peruvian bird life in the field. To the government of Perú and its various officials I am grateful for the courtesy and assistance granted in entering the country and exploring its zoological riches. In studying the collection since my return I have been indebted to Dr. Frank M. Chapman, of the American Museum of Natural History, New York; Mr. W. E. C. Todd, of the Carnegie Museum, Pittsburgh; Mr. O. Bangs, of the Museum of Comparative Zoology, Cambridge; Dr. Witmer Stone, of the Academy of Natural Sciences, Philadelphia; and Drs. A. Wetmore, H. Friedmann, and Charles W. Richmond, of the United States National Museum, Washington, for the loan of a large amount of comparative material from the collections under their charge, without which this report would not have been possible. Many thanks are due also to Dr. Charles E. Hellmayr of Field Museum of Natural History for much helpful comment and criticism and for comparative notes on many specimens in European museums and references to obscure or inaccessible publications.

The systematic arrangement in the following pages may seem somewhat confused inasmuch as I have not followed any single author. There is no check list of neotropical birds which is both complete and strictly modern. Consequently I have largely followed Wetmore (Proc. U. S. Nat. Mus., **76**, Art. 24, 1930) for the sequence of orders and families (not separately shown in the text); Simon (Histoire Naturelle des Trochilidae, 1921) for the genera of Hummingbirds; Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., **13**, pts. 3–6, 1924–1929) for the Mesomyodian (or Tyrannine) Passeriformes; Berlepsch (Ber. V. Int. Orn.-Kongr., pp. 1001–1161, 1912) for the Tanagers (excluding certain genera which I think belong to the Finches); and Brabourne and Chubb (Birds of South America, 1913) when better authority is not available.

The adopted scheme is not without its disadvantages and certain inconsistencies may be noted such as among the Finches where the genera most nearly related to the Tanagers will be found in a position

farthest removed from them. However the present paper is too limited in scope to warrant an attempt at reclassification on a large scale to rectify such errors.

The present repository of the type specimens of the various species and subspecies, so far as I have been able to ascertain the facts, have been given at the close of each original reference.

In the following descriptions, capitalization of the names of colors indicates direct comparison with Ridgway's Color Standards and Color Nomenclature.

?Crypturellus soui nigriceps (Chapman).

Crypturus soui nigriceps CHAPMAN, Amer. Mus. Novit., **96**, p. 1, 1923—Upper Río Suno, e. Ecuador; Amer. Mus. Nat. Hist.

A female from Vista Alegre, August 24, 1922 (in collection of H. B. Conover).

Compared with thirty-six additional specimens in Field Mus. Nat. Hist. and Conover coll., belonging to a number of races, from Chanchamayo, Perú; Buenavista, Santa Cruz, Bolivia; Vaqueria, Jiminez, Milagro, and Puente de Chimbo, Ecuador; Vista Nieve, Santa Marta, Colombia; Utinga and Murucutú, Para, and Ayupaya and Rio Manacapurú, Amazonas, Brazil; British Guiana; Colón, El Banco, Boquete, and Old Panamá, Panamá; Lagarto, Buenos Aires, Las Aguas, and Las Cañas, Costa Rica; Chapulco, Guatemala; and San Pedro Sula, Honduras.

I have not been able to arrange all of this material satisfactorily in the limited time I have been able to devote to it. Suffice it to say that the Vista Alegre bird appears to agree best with Chapman's description of *nigriceps*, although in the absence of specimens from eastern Ecuador I am not sure that it is properly referable to that form. The Bolivian bird probably is *hoffmannsi* and is much brighter in ventral coloration than my Vista Alegre specimen, though the upper parts are much the same. The Chanchamayo specimen, being a male, is not strictly comparable to the Vista Alegre female, from which it differs by less blackish crown, lighter brown back, and paler belly; it may not be fully adult. Until I have seen more material from Perú, I must let the identification of the present specimens remain more or less in doubt.

?Crypturellus obsoletus ochraceiventris (Sztolcman).

Crypturus obsoletus ochraceiventris SZTOLCMAN, Ann. Zool. Mus. Pol. Hist. Nat., **5**, (4), p. 199, 1926—La Gloria, Chanchamayo, Perú; Warsaw Mus.

A male from Chinchao, November 14, 1922 (in collection of H. B. Conover).

Compared with a male and female of *obsoletus* from Fazenda Cajoa, São Paulo, Brazil; a male from São Paulo; an unsexed skin from Rio Grande (do Sul); three males and three females from Misiones, Argentina; a male of *cerviniventris* from La Azulita, Venezuela; and two males and three females of (?)*punensis* from Incachaca, Cochabamba, Bolivia (all but the female of *obsoletus* in Conover collection).

With this material it is impossible to be certain of the identity of the Peruvian and Bolivian birds. Chubb's description of *punensis* gives little positive information and Sztolcman's description of *ochraceiventris* compares that form with *obsoletus* without showing how it differs from *punensis*, its geographically nearest ally. Chubb (Ibis, 1919, p. 8) recorded *punensis* from Chulumani, Bolivia, and Sztolcman had three Chulumani skins for comparison, which he also called *punensis*, so it is to be assumed that *ochraceiventris* shows certain differences from the west-Bolivian skins.

The Incachaca specimens at hand are darker and deeper in coloration than the skins of *obsoletus*, and are more richly colored, though above they are rather overlaid with dark gray. In these respects they answer Chubb's description of *punensis*, although they are not smaller than the Brazilian skins of the same sex. The Chinchao bird is a little deeper and richer below than the Bolivian specimens, while above it is decidedly more rufescent than either the Bolivian or Brazilian examples and has no trace of vermiculations on the back, thus agreeing, so far as can be determined, with the description of *ochraceiventris*, though the belly is not as ochraceous as it is in the Bolivian and Brazilian birds; in size it agrees best with the description of *punensis*.

If the Incachaca birds represent typical *punensis*, the Chinchao specimen may be separated as *ochraceiventris;* it certainly is not Sztolcman's *chirimotanus*. On the other hand it is not certain that *ochraceiventris* and *punensis* are recognizably distinct, due to the failure of the respective authors to furnish sufficient information concerning the two supposed forms. Since Chinchao is nearer to the type locality of *ochraceiventris* than to Oroya, Puno, Perú, the type locality of *punensis*, I must refer my specimen to *ochraceiventris* until such time as the relationship of these forms can be satisfactorily explained.

Nothoprocta curvirostris Sclater and Salvin.

Nothoprocta curvirostris SCLATER and SALVIN, Nom. Av. Neot., pp. 153, 163, 1873—Calicali, Ecuador; British Mus.

A female from the mountains near Huánuco, 10,500 feet, June 12, 1922 (in collection of H. B. Conover).

Compared with five males and seven females from the Páramo de Pichincha, Mt. Corazón, Quito, and the Cochaseca Range, Ecuador (Conover coll.).

The Peruvian bird is browner, less blackish, on the back and top of the head and has the flanks a little more deeply colored than the Ecuadorian specimens. The upper throat is without blackish hair lines and has buffy central spots margined with whitish, but several of the Ecuadorian birds are similarly marked in contrast to the others.

Anhima cornuta (Linnaeus).

(*Palamedea*) *cornuta* LINNAEUS, Syst. Nat., ed. 12, **1**, p. 232, 1766—based on MARCGRAVE'S "Anhima"; Brazil.

A young female from San Enrique, lower Ucayali River, March 25, 1923.

Compared with a young female from British Guiana and a female from Encontrados, Zulia, Venezuela.

Anas cristata alticola Ménégaux.

Anas cristata alticola MÉNÉGAUX, Bull. Soc. Philom. Paris, **10**, p. 224, 1909—Lake Poopo, Bolivia; Paris Mus.

Two males and a female from Huánuco Viejo, December 21, 1922 (one male and the female in collection of H. B. Conover).

Compared with three males and two females from Junín (two in Amer. Mus. Nat. Hist.); a male from Machu Picchu (U. S. Nat. Mus.); two females from El Cumbre, Bolivia (Amer. Mus. Nat. Hist.); and a male and female from Laguna de Taxara, Tarija, Bolivia (Conover coll.); also with eight specimens of *cristata* from Chubut, Arroyo Verde, Deseados, and Río Gallegos, Argentina (seven in Conover collection).

The specimens referred to *alticola* are larger than the series of *cristata* (wing, males, 285–309 mm. as compared with 252–266 mm.), and have the throat rather less purely whitish and the breast less clearly spotted. Peruvian birds from Junín and northward may be somewhat more deeply rufescent on the breast than the Bolivian specimens but the difference is not striking; judging by the individual

variation shown in the series of *cristata*, it may not be constant. A larger series of topotypical *alticola* would be desirable before attempting to separate a northern race on this character.

Nettion flavirostris oxypterum (Meyen).

Anas oxyptera MEYEN, Nov. Act., 16, Suppl., p. 121, pl. 26, 1833—southern Perú.

A male and two females from Huánuco Viejo, December 20 and 21, 1922 (the male and one female in collection of H. B. Conover).

Compared with a female from Junín, Perú; two males and a female from Tiraque, Cochabamba, and a male and a female from Laguna de Taxara, Tarija, Bolivia; a male from Río Loa, Antofogasta, Chile; and a male and female from Laguna Blanca, Catamarca, Argentina; also with seven males and five females of *flavirostris* from Neuquen and Mendoza, Argentina, and Chiloe Island, Chile (all specimens in Conover collection).

The series of *oxypterum* is lighter in dorsal coloration and has the pectoral spotting less heavy than in *flavirostris*. The general characters are too nearly alike in both forms to leave much doubt as to their specific affinity.

Merganetta armata leucogenis (Tschudi).

Anas leucogenis TSCHUDI, Arch. Naturg., 9, (1), p. 390, 1843— in Antibus elevatis," Perú; Mus. Neuchâtel.

A male from Panao, July 6, 1922; the skin of a young bird purchased at Huánuco Viejo in December, said to have been shot locally within the month (both skins in collection of H. B. Conover).

Compared with a female from Molinopampa; also with a male of *garleppi* from Tarija, Bolivia; a male and female of *frenata* from Río Nireguao, Chile; two males of *armata* from Coquimbo, Chile, and Neuquen, Argentina; and two males and a female of *columbiana* from Río San Pedro, Ecuador, and the Mérida region of Venezuela (all but the Moyobamba specimen of *leucogenis* in Conover collection).

Phillips (Nat. Hist. Ducks, 4, p. 223, 1926) has pointed out the variations shown by a number of specimens from Junín (Amer. Mus. Nat. Hist.) and suggests that if this variation is individual it points to the probability that the torrent ducks are only subspecies of a common species. This I believe to be the correct interpretation of the relationships among the various forms of this group. Phillips's

distributional map shows the ranges of *armata* and *garleppi* to overlap but this must be an error since these forms are not known to occur together. No details are given, since the two forms are treated by Phillips as full species.

The immature plumage of *leucogenis* seems not to have been described and the following account of the young bird purchased at Huánuco Viejo may be interesting. This specimen is white below, slightly ochraceous on the throat, and crossed on the foreneck with a band of deep ochraceous buff; sides of the breast and flanks strongly banded with black and white; crown vermiculated with blackish gray and white on a gray ground; sides of neck grayish white, indistinctly barred with blackish gray; mantle and scapulars dull black, broadly margined with brownish gray, somewhat ochraceous on the longest scapulars; lower back and rump gray, barred with narrow white lines: tail dull brownish gray, edged and marked diagonally with indistinct whitish lines; tips of shafts conspicuously ivory white; wing quills not developed; upper wing-coverts bluish gray with broad white tips on the greater series, forming a transverse band; spur undeveloped, consisting merely of a short, rounded knob; maxilla bluish black with whitish tip (mandible missing).

Examples of this handsome duck were seen on the upper Marañón River in several places and gave interesting exhibitions of their marvelous powers of diving. The Panao bird was one of a pair found in the rocky rapids of a small stream that descended the mountain side at that locality. I retrieved the male by going into the water after him as he was floating swiftly past, but the female (apparently wounded) rode to safety and was downstream before I could reach her.

Accipiter erythronemius ventralis Sclater.

Accipiter ventralis SCLATER, P. Z. S. London, 1866, p. 303—Nova Granada interior; Gurney collection, Norwich Mus.

A female from Chinchao, November 2, 1922.

Compared with a young male from Bogotá, Colombia; also with a female of *salvini* from Páramo de Tamá, Colombia, and two males and four females of *erythronemius* from Concepción, Tucumán, Argentina.

The rufescence of the under parts in the Chinchao bird is largely confined to a broad stripe on each side extending from the base of the bill through the malar region and down the sides and flanks,

becoming deeper posteriorly and culminating in the deep rufescent thighs. The throat and breast are lightly washed with rufescent; the belly and crissum are white.

The three forms mentioned, *salvini*, *erythronemius*, and *ventralis*, appear to belong to the same specific group. Stresemann (Journ. Orn., 72, p. 436, 1924) has added *velox* and several additional forms and placed them all under *nisus*, but I am not prepared to go so far at present.

Buteo platypterus platypterus (Vieillot).

Sparvius platypterus VIEILLOT, Tabl. Ency. Méth., 3, p. 1273, 1823—near Philadelphia, Pa.

A female from the Río Colorado, Chanchamayo Valley, February 6, 1923.

Compared with three Bogotá skins and a series from North and Central America.

?Buteo brachyurus Vieillot.

Buteo brachyurus VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 4, p. 377, 1816—Cayenne.

A male from Panao, July 16, 1922.

Compared with two males from Florida; also with numerous skins of *B. platypterus* and *B. lineatus*.

I am not entirely satisfied with my identification of this specimen since it does not match any description which I can find. In size and the various proportions of wing, tail, primaries, etc., it comes close to *brachyurus*, as it does in the coloration of the upper parts. Below there is a broad stripe of dark rufescent brown from the sides of the breast to the lower flanks, with some narrow brown streaks on the sides of the abdomen; the throat and median breast and abdomen are pure white. The tail is dark grayish brown above, crossed by eight or ten rather indistinct dusky bars. Until identification is more certain the specimen may be referred here with a query.

The stomach of the Panao bird contained the remains of a *Turdus* (*fuscater gigantodes?*).

Geranoaëtus melanoleucus australis Swann.

Geranoaëtus melanoleucus australis SWANN, Synop. Accip., ed. 2, 2, p. 67, 1922—Valle de Lago Blanco, Chubut, Patagonia; British Mus.

A female from Cullcui, Marañón River, December 13, 1922.

Compared with a nearly adult male from Río Nireguao and an immature male from Limache, Valparaiso, Chile; also with a female from Aconquija, Tucumán, Argentina, and a young male from Quebrado de los Cuervos, Uruguay, probably referable to typical *melanoleucus*.

The Río Nireguao specimen is the only one of the series that appears to show the definite characters of any supposed form of this species. The skins from Limache, Chile, and from Uruguay are quite immature and useless for comparison until detailed studies have been made by someone with enough material to determine the characters of the young birds. The Río Nireguao bird is quite boldly barred on the belly and flanks and is large, and evidently belongs to *australis* as characterized by Swann. The Cullcui specimen also is barred but much less pronouncedly. It falls within the range of measurements given for the females of *australis*, having a wing length of 532 mm. and thereby is too large to belong to *meridensis* which Swann believed might be the form inhabiting Perú. The Aconquija female is even less strongly barred than the Cullcui example but it certainly does not have the belly unqualifiedly "white," as was indicated by Swann to be the case in typical *melanoleucus*. It evidently is intermediate between that form and *australis*. No one appears to have had sufficient material to date to give a thorough account of the variations and distribution of this group.

Rupornis magnirostris occidua Bangs.

Rupornis magnirostris occidua BANGS, Proc. Biol. Soc. Wash., 24, p. 187, 1911—Río Tambopata, e. Perú; Mus. Comp. Zool.

A male from Chinchao, October 25, 1922.

Compared with a male from Lagunas and three females from Yurimaguas, Rioja, and San Ramón, Perú; also with a number of skins of *magnirostris* from British Guiana; Bõa Vista, Brazil; Orope, Zulia, Venezuela; and Cucuta, Colombia; and with *nattereri* from Quixada, Ceará; São Bento, Maranhão; and Tury-assú, Maranhão, Brazil.

No two of the Peruvian birds are exactly alike, but all apparently belong to the same form, which is intermediate between *nattereri* and *magnirostris*. Hellmayr [Arch. Naturg., 85, A, (10), p. 129, 1920] includes the whole of Perú in the range of *occidua* after examination of a larger series than I have before me.

Ibycter megalopterus megalopterus (Meyen).

Aquila megaloptera MEYEN, Acta Acad. Caes. Leop. Carol. Nat. Cur., **16**, suppl., p. 64, 1834—highest regions of the cordilleras, Chile; Berlin Mus.

Two males (one immature) from Panao, July 8 and 17, 1922.

Compared with an adult male from Macate and an adult male, a young male, and a young female from Junín, Perú; also with four adults and two young of *carunculatus* from Antisana, Ecuador.

The three adult Peruvian birds show an interesting progression in the direction of *carunculatus*. The Junín specimen has the breast uniform black and two outer primaries with broad white tips. The Panao bird, from farther north, has faint indications of pale terminal or subterminal spots on the lower breast and has white tips on three outer primaries (with indications of white tips on the others). The Macate specimen has quite distinct, though small, whitish spots on the lower breast and has five outer primaries with distinct white tips. The Ecuadorian specimens of *carunculatus* have all the primaries tipped with white and the whole breast and the flanks with large white subterminal spots, and average larger than *megalopterus* although the extremes overlap in size. The general characteristics of curly crest, black back, white-tipped secondaries (broader in *carunculatus*), white upper tail-coverts and lower rump, and other features, found in both forms, leave no doubt that these birds are representatives of the same group. Probably *albogularis* belongs to the same group although I have no specimens from which to form a clear judgment.

The species was known locally as "Dominico." It was most commonly seen on the ground. The young bird had its stomach full of angleworms.

Cerchneis sparveria peruviana Cory.

Cerchneis sparverius peruviana CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, No. 8, p. 296, 1915—Chachapoyas, Perú; Field Mus. Nat. Hist.

Two males and a female from Huánuco, May 22, August 4, and August 6, 1922; a male from the mountains near Huánuco, 10,500 feet, June 8; a male from Vista Alegre, August 16; two males from Cullcui, Marañón River, December 12 and 16.

Compared with the type from Chachapoyas and five males from Macate, Hacienda Limón, Mirador, and Menucucho, Perú; also with a male of *cinnamomina* from Río Nireguao, a male from Puerto Montt, a male from Lake Gualletue, Province of Cautin, and a male and female from Riñihue and Mafil, Province of Valdivia, Chile.

The Peruvian birds are separable from *cinnamomina* as a whole by more ochraceous less cinnamomeous breast and a tendency toward the reduction of the black barring on the back. The series is far from uniform. The type, one male from Huánuco, and the bird from the mountains near Huánuco are the most heavily barred on the back, being about like the males of *cinnamomina* in this respect. Four other birds are more or less intermediate between these and the Vista Alegre and Cullcui skins, which are lighter rufescent on the back with the barring obsolete. These last three birds differ among themselves in turn. The Vista Alegre specimen has no streaks on the breast while the two Cullcui examples are the most heavily streaked of all the Peruvian series. The streaks on the breast are rather pronounced in the Macate bird and the two Huánuco males, but obsolete in the others. The Vista Alegre bird, moreover, has the black subterminal bar on the two middle pairs of rectrices broken in the middle to form two separated spots. One Cullcui and one Huánuco male show a rufescent spot on the occiput lacking in the others, a feature used by Cory as a character of *peruviana;* the spot is present in all of the series of *cinnamomina.*

Apparently *peruviana* is a highly variable form but it is not clear that the material at hand from Perú can be referred, even in part, to any other race, at least until certain distributional problems are solved.

Penelope jaqúaçu jaqúaçu Spix.

Penelope jaquaçu SPIX, Av. Bras., 2, p. 52, pl. 68, 1825—"in sylvis fluminis Solimoens"; Munich Mus.

A female from Vista Alegre, August 24, 1922 (in collection of H. B. Conover).

Compared with a female from Chanchamayo and a male from Lagarto Yacu, Ecuador; also with a male and female of *speciosa* from Buenavista, Santa Cruz, Bolivia (Conover collection).

The three Peruvian and Ecuadorian birds are rather uniform in coloration and size. Since Hellmayr [Abh. K. Bayer. Akad. Wiss., 2 Kl., **22**, (3), p. 688, 1906] has compared a Chanchamayo specimen with the type of *jaqúaçu* and found them to be indistinguishable, it is apparent that the Vista Alegre bird is referable to the present form. The Bolivian *speciosa* (=*boliviana* auctorum, nec Reichenbach) appears to be only subspecifically distinct.

The Vista Alegre bird was named "Pukakunga" by the natives.

Ortalis guttata guttata (Spix).

Penelope guttata SPIX, Av. Bras., 2, p. 55, pl. 73, 1825—"ad flumen Solimoëns"; Munich Mus.

A female from Vista Alegre, August 24, 1922; a male from Chinchao, October 25 (both in collection of H. B. Conover).

Compared with three males and a female from Río Catapino and Concepción, e. Ecuador (Conover collection); a Bogotá skin, apparently referable to *guttata;* and a male of *albiventris* from Macaco Secco, Brazil.

The two Peruvian birds have the forehead distinctly gray and a more or less pronounced superciliary stripe also gray, while the whitish tips on the pectoral feathers are uniformly broad, without much indication of a restricted spot of purer white in the center; in these respects they differ from the average of the Ecuadorian series. However, one of the Ecuadorian birds has the gray forehead and superciliary stripe and another has the broadly and evenly margined pectoral feathers, showing that these characters are not restricted to the Peruvian examples. The Ecuadorian birds, on the other hand, have the ground color of the breast and lower throat somewhat blacker than the Peruvian skins. Apparently there is not a very close approach toward the characters of the Urubamba specimens which Chapman (Bull. U. S. Nat. Mus., **117**, p. 44, 1921) refers to *adspersa.* Taczanowski (Orn. Pér., **3**, p. 279, 1886) points out differences between specimens from central Perú, which must be typical *adspersa,* and others from southern Perú, which should be like the Urubamba birds, and my two examples do not agree with the characteristics assigned to either series. A number of specimens from various parts of Perú will be necessary to determine the limits of distribution and of individual variation in whatever forms may be found to inhabit the country. Meanwhile I can not satisfactorily separate my specimens from east-Ecuadorian birds which Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 155, 1926) identifies with typical *guttata.*

Psophia crepitans leucoptera Spix.

Psophia leucoptera SPIX, Av. Bras., 2, p. 67, pl. 84, 1825—Rio Negro, errore [cf. HELLMAYR, Abh. K. Bayer. Akad. Wiss., 2 Kl., 22, (3), p. 709, 1906]; Munich Mus.

A female from Puerto Bermúdez, March 7, 1923 (in collection of H. B. Conover).

Compared with three males and two females from Parana de Tacaré, Amazonas, and a female from Ayaguia, Rio Purús, Amazonas, Brazil; also with a female of *ochroptera* from Manacapurú, Rio Solimoës; two females of *obscura* from Rio Cumarapy and Utinga, Para; five females of *crepitans* from Monte Alegre, Para, Brazil and Essequibo River, British Guiana; and a female of *napensis* from Guamayacu, Ecuador (all but one female of *crepitans* in collection of H. B. Conover).

The various forms of *Psophia* replace each other geographically and appear to form but one specific group. The characteristics of each race are suggested in the variations of the others.

Pardirallus sanguinolentus tschudii Chubb.

Pardirallus rityrhynchus tschudii CHUBB, Ibis, 1919, p. 50—Lake Junín, Perú; British Mus.

Three males and four females from Huánuco, July 23–30, 1922 (five in collection of H. B. Conover).

Compared with three young males from Cajamarca, Perú; also with three males and two females of *sanguinolentus* from Tunuyan (Mendoza) and Burruyain, San Felipe, and Río Colorado (Tucumán), Argentina.

The Peruvian birds differ from the Argentine specimens by their darker coloration above and below; both series show semi-concealed black spotting on the lower back, which may be a little more conspicuous in the Argentine series because of the slightly lighter color of the tips of the feathers.

I use the name *sanguinolentus* for the Argentine specimens because the earlier name *rytirhynchus* of Vieillot is unidentifiable. Vieillot based his name on Azara's description of three apparently young birds from Paraguay which, among other characters, had a white stripe from throat to crissum and had bills measuring 35½ lignes =80 mm. Neither character seems to apply to the species long identified with the description and even if the three birds (which Azara says were all alike) were abnormal specimens of some rail of the present genus, there is no evidence that they were not of the species named *nigricans* by Vieillot, based on adults also described by Azara from Paraguay. Swainson's species, *sanguinolentus*, was said to be from "Brazil and Chili" but the type, now in the Museum of Comparative Zoology, Cambridge, is labeled "Brazil" and has been examined by Dr. Hellmayr who informs me that it is identical

with *rytirhynchus* auctorum. In view of the uncertainty surrounding Vieillot's name *rytirhynchus*, it is preferable to use the Swainsonian name.

These interesting birds (*tschudii*) were common at the Hacienda Dispensa, below Huánuco, in the jungles of reeds and *Equisetum* near the river. Their extraordinary song was heard much more often than the birds were seen. The most common utterance began with a low hum, something like the starting of a dynamo, repeated two or three times with a successive increase in pitch and with the last one sliding into a cackled, "ka-wheet, ka-wheet, ka-wheet" or "cha-gweet, cha-gweet" with a deep, choking undertone, "ug, ih-hug, ug, . . ." accompanying it. Another expression was a long drawn "oh . . . chuck-a-chuck-a-chuck-a-chuck" The alarm note was a sharp "chick."

Creciscus viridis (P. L. S. Müller).

Rallus viridis P. L. S. MULLER, Natursyst. Suppl., p. 120, 1776—based on DAUBENTON, Pl. Enl. 368; Cayenne.

Crex facialis TSCHUDI, Arch. Naturg., 9, (1), p. 388, 1843—Perú (probably Chanchamayo); young bird; Mus. Neuchâtel.

Creciscus viridis subrufescens BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, p. 49—La Merced, Chanchamayo, Perú; Warsaw Mus.

A male and female from Huachipa, September 27 and October 7, 1922; a female from Hacienda Buena Vista, Río Chinchao (collected by E. Heller), September 8 (the Huachipa female and the Hacienda Buena Vista skin in collection of H. B. Conover).

Compared with a skin from the Carimang River, British Guiana; two females from Fazenda Inhuma, Alto Parnahyba, Maranhão, Brazil; and two males and two females from Manacapurú, Amazonas, Brazil (all in Conover collection); and with a Bogotá skin and a female from Ponto (Canella), Maranhão (Field Mus. Nat. Hist.).

I am unable to recognize any racial distinctions in this material. The characters given by Berlepsch and Stolzmann for *subrufescens* may be found scattered through the series. From no region are the specimens uniform and no characters can be found to distinguish any geographic units, even variable ones, without the characters reappearing in individuals from other localities. I believe that the species must be considered as a highly variable one without clearly marked races.

My Huachipa birds were found on a dry hillside at the edge of the tropical forest in a dense thicket of second-growth saplings.

Eurypyga helias helias (Pallas).

Ardea helias PALLAS, Neue Nord. Beytr., 2, p. 48, pl. 3, 1781—Surinam.

A female from Orellana, lower Ucayali River, March 24, 1923.

Compared with a male from British Guiana and two males and a female from Serra da Lua, Brazil; also with a male of *major* from near San Pedro Sula, Honduras.

The Peruvian specimen clearly belongs to the typical race although it differs from the other specimens by lacking all trace of a rufous spot on the outer primary.

Jacana spinosa peruviana subsp. nov.

A female from Masisea, lower Ucayali River, March 22, 1923.

Compared with the material listed below.

Type from Masisea, lower Ucayali, Perú. No. 2797, collection of H. B. Conover, Chicago. Adult female collected March 22, 1923, by J. T. Zimmer. Original number 3541.

Diagnosis.—Similar to *J. s. melanopygia* from western Venezuela but larger and with rump, upper tail-coverts, tail, and belly less blackish, more purplish. Differs from *J. s. intermedia* from the north coast of Venezuela by larger size and by having the back, upper tail-coverts, tail, and flanks darker. Back, tail-coverts, tail, and flanks very much darker than in *jacana*.

Habitat.—Lower Ucayali River, Perú (possibly adjacent parts of upper Amazonia).

Description of type.—Head, neck, upper part of mantle, and upper breast greenish black; lower mantle, rump, and scapulars rich Diamine Brown with purplish violet lights; upper wing-coverts like scapulars except for a wide strip along outer border of the wing, including alula and primary-coverts which are sooty blackish; primaries and outer secondaries largely Light Chalcedony Yellow with all of the outer margin of the outermost primary and the terminal portion of the remainder (except the inner ones), the tips, and the distal portion of the inner margins light brown; inner webs of the inner (yellowish) quills with an irregular brownish area at the base; innermost secondaries and tertials like the back on the exposed portions, browner basally; upper tail-coverts and tail Aniline Black with brighter violet lights; belly light Aniline Black with violet lights; flanks like the belly but sides of body under the wings near the border of the rump paler and browner; inner under wing-coverts

Hessian Brown; outer ones Dark Grayish Brown. Iris dark brown; bill yellow; frontal leaf and wattles ox-blood red; alar spines yellow, paler at tips; feet slaty black. Wing, 137 mm.; tail, 48; culmen, 34¾; frontal leaf, 15¼; tarsus 62½.

Remarks.—In spite of the evident distinctness of the present race and the fact that it is cut off from the range of its nearest ally, *melanopygia*, by the region occupied by the very different *jacana*, I would hesitate to describe it from a single specimen were it not for a critical note published by Berlepsch in the Journal für Ornithologie, 1889, p. 320. In this account, Berlepsch identifies a female from Sarayacu, Ucayali River (not far from Masisea) as *melanopygia* with the observation that it differs from Sclater's description of *melanopygia* by having the lower back and upper tail-coverts not black but purplish brown with blackish tips. He further describes it in comparison with "*spinosa*" (=*jacana*) from Rio Grande do Sul, Brazil, and Venezuela, which further shows its similarity to the Masisea specimen, and gives measurements which agree with my example (wing, 138 mm.; tail, 48; culmen, 37; tarsus, 58). It is apparent, therefore, that the Masisea specimen is not an abnormality but a member of a distinct subspecies.

I follow Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., **12**, No. 18, p. 489, 1929) in considering *jacana* and its races as forms of *spinosa*.

Material examined (in Field Mus. Nat. Hist. and collection of H. B. Conover):

J. s. jacana—Surinam: 1?; Paramaribo 1 ♂. British Guiana: Georgetown 1♂ 2♀; Potaro 1♂. Brazil: Serra da Lua 2♀; Quixada 1♂ 1♀; Santa Rita 1♀; Deserto, Piauhy 1♀; Ibiapaba, Piauhy 1♂; São Francisco, Maranhão 1♂; Manacapurú 2♀. Argentina: Concepción, Tucumán 4♂ 1 ♀; Buenos Aires 1 ♂. Paraguay: Villa Rica 3 ♂ 1 ♀.

J. s. intermedia—Venezuela: Aragua, Maracay 2♂ 1♀.

J. s. melanopygia—Venezuela: Encontrados, Zulia 2♂ 2♀; Catutumbo 1♂; Maracaibo 1♀; Río Cogollo 1♂ 1♀.

J. s. hypomelana—Colombia: Bogotá 3.

J. s. peruviana—Perú: Masisea 1 ♀.

J. s. scapularis—Ecuador: Vinces 1 ♂.

Ptiloscelys resplendens (Tschudi).

Charadrius resplendens TSCHUDI, Arch. Naturg., 9, (1), p. 388—Perú, "in Antium incola"; Mus. Neuchâtel.

Two males and two females from Huánuco Viejo, December 20, 1922 (two in collection of H. B. Conover).

Compared with a male and female from Junín, a male and female from near Leimabamba, and a female from Chachapoyas, Perú; a male from Suaquin, Bolivia; and a skin without sex from Argentina.

The Junín specimens probably are topotypical.

Capella paraguaiae andina (Taczanowski).

Gallinago andina TACZANOWSKI, P. Z. S. London, 1874, p. 561—Junín, Perú; Warsaw Mus.

Two females from the mountains near Huánuco, 12,200 feet, June 26, 1922 (collection of H. B. Conover).

Compared with a female from Junín and a male from near Leimabamba, Perú; a male, two females, and a specimen of uncertain sex of *paraguaiae* from the departments of San José, Rocha, and Minas, Uruguay, and São Bento, Maranhão, Brazil.

The Junín bird is topotypical and the Huánuco specimens agree with it.

These birds were found about the bogs at the headwaters of the streams in the *puna* region.

Actitis macularia (Linnaeus).

(*Tringa*) *macularia* LINNAEUS, Syst. Nat., ed. 12, **1**, p. 249, 1766—based on EDWARDS, Gleanings, pl. 277; Pennsylvania.

A male from Puerto Bermúdez, March 9, 1923 (in collection of H. B. Conover).

Himantopus himantopus mexicanus (P. L. S. Müller).

Charadrius mexicanus P. L. S. MULLER, Natursyst. Suppl., p. 117, 1776—Mexico.

A female from Puerto Bermúdez, March 17, 1923 (in collection of H. B. Conover).

Larus serranus Tschudi.

L(arus) serranus TSCHUDI, Arch. Naturg., **10**, (1), p. 314, 1844—Perú (= Jauja; Faun. Per.); Mus. Neuchâtel.

A male from Huánuco Viejo, December 20, 1922.

No material for comparison.

The species was not uncommon on the high plains at Huánuco Viejo and also along the upper stretches of the Marañón River.

Columba albilinea albilinea Bonaparte.

Columba albilinea BONAPARTE, Consp. Av., 2, p. 51, 1854—New Granada; British Mus.

Four males from the mountains near Huánuco, 10,500 feet, June 2–13, 1922 (three in collection of H. B. Conover).

Compared with two skins from Bogotá, a male and female from Santa Elena, Colombia, a male from Hacienda Llagueda, Perú, and a male from Tucumán, Argentina.

The Peruvian birds seem to be indistinguishable from the typical Colombian examples.

Columba plumbea delicata Berlepsch and Stolzmann.

C(olumba) p(lumbea) delicata BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, p. 44—La Gloria, Chanchamayo, Perú; Frankfort Mus.

Columba plumbea propinqua CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, No. 8, p. 295, 1915—Moyobamba, Perú; Field Mus. Nat. Hist.

Columba plumbea andicola CHUBB, Bull. Brit. Orn. Club, 38, p. 32, 1917—Mapiri, n. Bolivia; British Mus.

A male from Huachipa, September 24, 1922 (in collection of H. B. Conover).

Compared with a skin from "Ecuador" (Conover collection); a male from Mindo, Ecuador, and a male (the type of *propinqua*) and two females from Moyobamba; also with a male and an unsexed skin of *pallescens* from British Guiana, and a male, apparently of the same form (Conover collection) from Incachaca, Cochabamba, Bolivia.

The Peruvian and Ecuadorian birds are identical and all agree with the description of *delicata*. This name was proposed obscurely and must have been overlooked by Cory when he described *propinqua*. Chubb (Ibis, 1919, p. 33) received a specimen collected in Chanchamayo and labeled by Berlepsch and Stolzmann "*andicola*" (possibly a name which they originally planned to use instead of *delicata*), and after searching vainly through literature for a publication by Berlepsch and Stolzmann with this name in use, Chubb published a description of it, having two Bolivian specimens in addition, one of which he made the type of the subspecies. The Chanchamayo bird probably was one of the paratypes of *delicata*.

The skin from Incachaca is much darker above and less vinaceous on the belly than the Peruvian birds and agrees best with the two

Guianan skins of *pallescens*, though it is larger than either of them (wing 184 mm. as compared with 165 and 176).

Zenaida auriculata hypoleuca Bonaparte.

Z(enaida) hypoleuca BONAPARTE, Consp. Av., 2, p. 83, 1854—"Pearl Island" (Panamá), errore; probably Guayaquil, Ecuador; British Mus.

Zenaida auriculata pallens BANGS and NOBLE, Auk, 35, p. 446, 1918—Huancabamba, n. w. Perú; Mus. Comp. Zool.

Four males and two females from Huánuco, May 24 and July 20–26, 1922 (five in collection of H. B. Conover).

Compared with six males and two females from Macate, Menucucho, Mirador, Chachapoyas, and Hacienda Llagueda, Perú; also with five males and three females (Conover collection) from Valle de Rojas, w. Ecuador.

The series shows some individual variations but represents a single distinct subspecies. The bird has not been found by recent collectors on Pearl Island and it is supposed that the type was mislabeled. Since the collectors of the type, Kellett and Wood, are known to have worked at Guayaquil, it is presumed that the specimen in question came from that region where the race is known to occur. Chapman (Amer. Mus. Novit., 31, p. 1, 1922) has noted the facts of the case and the synonymy.

Gymnopelia ceciliae ceciliae (Lesson).

Columba (Chamaepelia) cecilioe (sic) LESSON, Echo du Monde Savant, Jan. 12, 1845, p. 8; (Reprinted papers, p. 729, 1913)—Perú.

Columba (Chamaepelia) anais LESSON, Descr. Mamm. et Ois., p. 210, 1847—Perú.

A male from Santa Eulalia, April 19, 1922; a male from Matucana, April 30 (both specimens in collection of H. B. Conover).

Compared with five males and four females from Macate and a male and female from Hacienda Llagueda, Perú; also with a male (the type) and a female of *obsoleta* from Cullcui, Marañón River and a female from Balsas; and a male of *gymnops* from Puno, Bolivia.

The Matucana and Santa Eulalia birds are virtually topotypical, in all probability, and the Macate birds agree well with them.

Gymnopelia ceciliae obsoleta Zimmer.

Gymnopelia ceciliae obsoleta ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, No. 4, p. 51, 1924—Cullcui, Marañón River, Perú; Field Mus. Nat. Hist.

A male (the type) and a female from Cullcui, December 12, 1922 (female in collection of H. B. Conover).

Compared with a female from Balsas and with specimens of *gymnops* and *cecıliae* as listed under the latter form.

This race inhabits the arid hillsides, living on the ground among the rocks and desert plants and in the bushes and low trees that line the small watercourses.

Leptotila verreauxi decipiens (Salvadori).

Homoptila decipiens SALVADORI, Atti Accad. Sci. Torino, 6, p. 131, 1871—Brazil; Turin Mus.

Leptoptila intermedia CHUBB, Bull. Brit. Orn. Club, 38, p. 17, 1917—Central South Perú-Huiro, Urubamba Valley; British Mus.

Leptotila ochroptera kalinowskii SZTOLCMAN, Ann. Zool. Mus. Pol. Hist. Nat., 5, (4), p. 201, 1926—Santa Ana, Perú; Warsaw Mus.

Two males and a female from Chinchao, October 24–November 17, 1922; a female from Vista Alegre, October 12; (three in collection of H. B. Conover).

Compared with a female from Moyobamba; three males and three females from the Urubamba Valley (Amer. Mus. Nat. Hist.); two females from Chapada, Matto Grosso, Brazil (Amer. Mus. Nat. Hist.); four males and a female from São Marcello, Macaco Secco, and Rio de las Velhas, Brazil; and a male and female from Fazenda Cajoa, São Paulo, Brazil (Conover collection); also with a male and a female of *chlorauchenia* from the Department of Rocha, Uruguay (U. S. Nat. Mus.); three males and a female of *approximans* from Serra Baturité, São Marcello, and Rio do Peixe, Brazil; twenty-one specimens of *verreauxi* from northern Brazil and Venezuela; and sixteen skins of *decolor* as listed under that subspecies.

I am unable to separate the Chinchao and Vista Alegre birds from the typical south-Brazilian *decipiens*, and the Urubamba specimens (of *intermedia*) belong here also. Hellmayr has compared the females from Chinchao and Vista Alegre with the type of *intermedia* in the British Museum and found the Chinchao bird, in particular, to be a match for it. The female from Moyobamba shows a little approach toward *verreauxi* and the Bôa Vista and Rio Branco skins of *verreauxi* show an approach toward *decipiens*. Specimens from the Marañón Valley and the coast of Perú are referable to *decolor*, discussed below.

Leptotila verreauxi decolor (Salvin).

Leptoptila decolor SALVIN, Novit. Zool., 2, p. 21, 1895—Cajabamba, Perú; British Mus.

Leptoptila verreauxi occidentalis CHAPMAN, Bull. Amer. Mus. Nat. Hist., **31**, p. 142, 1912—San Antonio, Colombia; Amer. Mus. Nat. Hist.

A male and female from Cullcui, Marañón River, December 13, 1922 (female in collection of H. B. Conover).

Compared with a male from Menucucho, a female from Hacienda Llagueda, and five males from Hacienda Limón; also with four skins from Chongon, Nono, and Puente de Chimbo, w. Ecuador (Conover collection); and a male and four females from the Cauca Valley, Colombia (four in Amer. Mus. Nat. Hist.).

The skins from Menucucho, Hacienda Llagueda, and Hacienda Limón are virtual topotypes of *decolor* and the Cullcui birds are referable to the same form though they vary slightly in the direction of the darker *decipiens*. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 168, 1926) has discussed the identity of *decolor* and *occidentalis*.

Columbigallina minuta minuta (Linnaeus).

(*Columba*) *minuta* LINNAEUS, Syst. Nat., ed. 12, **1**, p. 285, 1766—based on BRISSON, "Turtur parvus fuscus americanus"; "San Domingo," errore; Cayenne suggested by BERLEPSCH and HARTERT, 1902.

Two males and two females from Huánuco, July 23–29, 1922 (three in collection of H. B. Conover).

Compared with twenty-nine additional skins (Field Mus. Nat. Hist. and Conover collection) from Menucucho, Perú; Georgetown, British Guiana; Villa Rica, Paraguay; Varzea Formosa (Ceará), Ibiapaba (Piauhy), and Alto Parnahyba (Maranhão), Brazil.

The Menucucho birds belong to Bonaparte's *amazilia;* one of the males has been compared with the type in the Paris Museum by Dr. Hellmayr. There seems to be little to distinguish this form from typical *minuta*, however, and I am not certain that it is entitled to recognition. Some of the specimens of *minuta* are just as small as the Menucucho specimens and the coloration varies within about the same limits. On the other hand, my Huánuco specimens are larger than the Menucucho skins but are matched by large specimens of *minuta*. There are noticeable individual differences in coloration throughout the series, some of which appear to be due to age, but with the material at hand I am unable to separate the Huánuco birds from the typical form.

It is necessary to revert to the name *Columbigallina* Boie, 1826, instead of *Chamaepelia* Swainson, 1827, for the present genus. Boie's name was dropped as being preoccupied by *Columbigallina* Oken,

1817, but Oken's name is a pure nomen nudum, without description or reference to any species and hence is untenable. The type of *Columbigallina* Boie is *C. passerina*, by monotypy.

Oreopeleia montana (Linnaeus).

(*Columba*) *montana* LINNAEUS, Syst. Nat., ed. 10, 1, p. 163, 1758—Jamaica.

A male from Puerto Bermúdez, March 13, 1923 (collection of H. B. Conover).

No races of this wide-ranging species have ever been satisfactorily distinguished.

Coccyzus melacoryphus Vieillot.

Coccyzus melacoryphus VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 8, p. 271, 1817—based on AZARA; Paraguay.

A male and female from Huánuco, July 20 and 30, 1922.

Compared with thirty additional skins from Uruguay, Argentina, Brazil, Venezuela, and northern Perú (Moyobamba).

No consistent variations are apparent in the series.

Piaya cayana obscura Snethlage.

Piaya cayana obscura SNETHLAGE, Journ. Orn., 56, p. 21, 1908—Bom Lugar, Rio Verde, upper Rio Purús, Brazil; Pará Mus.?

Piaya cayana boliviana STONE, Proc. Acad. Nat. Sci. Philad., "1908," p. 500, Jan., 1909—Yungas, Bolivia.

A female from the Río Colorado, Chanchamayo Valley, February 6, 1923.

Compared with two females from Río Espirito Santo and Porto Velho, Bolivia, and a female from Huiro, Urubamba Valley, Perú; also with the other material listed under *P. c. nigricrissa*.

The Río Colorado bird is doubtfully referred to this subspecies. It has the under side of the tail as rufescent as the Bolivian and Urubamba Valley skins, in contrast to the blackish coloration of the same region in *nigricrissa*, but the crissum is sootier than in the other skins of the present form though not so black as in the birds from farther north (a Yurimaguas specimen excepted). Probably a series of specimens from the Chanchamayo Valley would show individuals approaching both forms, between which these would exist as intermediates since the locality is intermediate in position. With only one skin at hand from the region it is impossible to say to which race the greater number of individuals might belong.

Having no material from the Purús, I follow recent authors in assigning the Bolivian and Urubamba birds to *obscura*.

Piaya cayana nigricrissa (Cabanis).

Pyrrhococcyx nigricrissa CABANIS, Journ. Orn., **10**, p. 169, 1862—skin from Fraser coll. = Babahoyo or Esmeraldas, w. Ecuador (CHAPMAN, 1926); Berlin Mus.

A male and two females from Vista Alegre, August 16–October 13; a male and female from Chinchao, October 27 and November 9; a male from Hacienda Exito, Río Cayumba (E. Heller coll.), July 30.

Compared with a male from Yurimaguas; also with four females of *obscura* from Río Espirito Santo and Porto Velho, Bolivia, and Huiro, Urubamba Valley and Río Colorado, Chanchamayo Valley, Perú; two skins of *mesura* from Bogotá, Colombia; and various specimens of *cayana*, *macroura*, *cearae* and other South American forms not studied in detail.

The Vista Alegre, Chinchao, and Cayumba specimens answer well to the descriptions of *nigricrissa* and can not be referred to any other known race. The Yurimaguas specimen is not so clearly marked, having the under side of the tail with a slight ferruginous tinge and the crissum less blackish than in the others of the series. It is still closer to *nigricrissa* than to *mesura*, recorded from eastern Ecuador, and can not well be assigned to *obscura* because of the interruption in range; probably it is an unusually pale example of the present form.

This large and showy cuckoo is known locally as "Arriero" because of the resemblance of its unmusical song to some of the syllables used by the arrieros, or mule-drivers, to urge on their recalcitrant charges.

Piaya minuta minuta (Vieillot).

Coccyzus minutus VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., **8**, p. 275, 1817—based on LATHAM'S *Cuculus cayanensis*, Var. A; Cayenne.

Two males from the Río Colorado, Chanchamayo Valley, January 29 and February 17, 1923.

Compared with eight adults from British Guiana; Bogotá, Colombia; Orope and Valle, Venezuela; and Conçeição, Brazil; and a juvenal male from Moyobamba, Perú.

Although there is noticeable variation in this assortment of material, no geographic groups can be separated from it. The young bird from Moyobamba is interesting, having the rump dis-

tinctly barred with cinnamon-rufous and fuscous, and the back, head, upper wing-coverts and upper tail-coverts dull brown very faintly tipped with cinnamomeous; rectrices narrowly tipped with cinnamomeous; under parts dull, dark brown.

Illiger's name, *rutilus* (Abh. Ak. Wiss. Berlin, "1812–15," p. 224, 1816), has been accepted by recent authors as having priority over Vieillot's name *minutus* but I believe that this is an error. Through the kindness of Dr. Hellmayr I have had access to a manuscript extract of that part of Illiger's work referring to this matter and find the following transcription: "Zu *Cuculus Cayanus* (417, 14) gehört *Cuculus cornutus* (422, 21); dagegen müssen die Varietäten β und γ als eine sehr verschiedene Art, *Cuculus rutilus* des Museums, abgesondert werden." Illiger thus includes both varieties of Gmelin's species, (*Cuculus*) *cayanus* (var.) β and γ, in the form which he names *rutilus* and there is no evidence that he included γ in error as suggested by Berlepsch and Hartert (Novit. Zool., **9**, p. 97, 1902). Illiger's name, therefore, represents a composite species and should be dropped as unidentifiable. Gmelin's (var.) γ was based on Latham's Var. A which, alone, was named *minuta* by Vieillot the year following Illiger's ill-advised effort. Vieillot, t. c., p. 236, described *Cuculus melanogaster* from "Java" and, p. 277, *Coccyzus rutilus* from Brazil without any references to other authors or to previous nomenclature; they have no bearing on the validity of *minuta* which is the first valid name applied to Latham's Var. A and hence Gmelin's (var.) γ.

Crotophaga ani Linnaeus.

(*Crotophaga*) *Ani* LINNAEUS, Syst. Nat., ed. 10, **1**, p. 105, 1758—based on BROWN, SLOANE, and MARCGRAVE; "America, Africa" (Africa in errore).

Two males and two females from Huánuco, May 28–July 30, 1922; a male from Vista Alegre, October 12.

Compared with numerous specimens from various parts of South America.

The species remains uniform over a wide range of territory.

Crotophaga sulcirostris sulcirostris Swainson.

Crotophaga sulcirostris SWAINSON, Philos. Mag., (new ser.), **1**, p. 440, 1827—Mexico.

A male from Chosica, April 15, 1922; a male from Santa Eulalia, April 22.

Compared with series from various countries of Central and South America.

Apparently confined in Perú to the coastal district. I have not enough material from this region to investigate the status of *casasii* Lesson. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 341, 1926) thinks it may be difficult to separate from typical *sulcirostris*.

Ara militaris militaris (Linnaeus).

(*Psittacus*) *militaris* LINNAEUS, Syst. Nat., ed. 12, **1**, p. 139, 1766—no locality; Colombia suggested by BRABOURNE and CHUBB, 1912.

?*Ara militaris boliviana* REICHENOW, Orn. Monatsb., **16**, p. 13, 1908—Bolivia (Machareti, region of upper Pilcomayo); Berlin Mus.

A female from Huachipa, September 7, 1922.

Compared with a Bogotá skin; also with three skins of *mexicana* from Mexico.

The Huachipa bird agrees fairly well with the Bogotá specimen and agrees in part with the description of *boliviana*. The chin, throat, and auriculars are rich Bay with greenish tips on the posterior feathers, somewhat more extensively than in the Bogotá specimen though not more than might be due to individual variation. In this respect the Peruvian bird agrees with the description of *boliviana*. However, the blue of the remiges and the tips of the rectrices is paler, not darker, than in the Colombian skin. In the absence of Bolivian material, of which the describer of *boliviana* had only the type, I am not convinced of the validity of that form and prefer to call the Huachipa bird *militaris*.

Aratinga mitrata mitrata (Tschudi).

C(*onurus*) *mitratus* TSCHUDI, Arch. Naturg., **10**, (1), p. 304, 1844—Perú, I suggest Chanchamayo Valley; Mus. Neuchâtel.

A male and female from Chinchao, October 22 and 26, 1922.

Compared with a female from Chanchamayo and five skins from Tucumán, Argentina.

The Argentine birds have decidedly more red on the face than the Peruvian specimens, but the latter are variable among themselves. The Chinchao male has a broad red ring around the eye but only a few scattered red feathers down the malar region. The Chanchamayo female has the orbital ring narrower and has only two or three red feathers on each side in the malar region. The Chinchao female has the orbital ring almost absent while the cheeks

show only narrow red tips on a few feathers of each side. However, the Chanchamayo bird must be nearly topotypical while the Chinchao specimens show the variation in both directions. Possibly the Argentine examples are separable.

At Chinchao, the birds with admixture of red feathers in the body plumage, like the male which I secured, were called "Garga"; examples without such admixture (except on the head), like the female I obtained, were called "Jornalero," being supposed to belong to a different species.

Psilopsiagon aurifrons aurifrons (Lesson).

Psittacus (*Lathamus*) *aurifrons* LESSON, Cent. Zool., p. 63, pl. 18, March, 1831—"Nouvelle Zélande" (emended to Callao in Rev. Zool., **5**, p. 135, 1842); type in Massena coll. (cf. BOURJOT ST. HILAIRE, Perroq., text to pl. 45, 1837–38), and should be in Acad. Nat. Sci. Philadelphia.

C(*onurus*) *sitophagus* TSCHUDI, Arch. Naturg., **10**, (1), p. 304, 1844—Perú; Mus. Neuchâtel.

A male from Matucana, April 29, 1922.

Compared with a male and female of *orbygnesius* from Puno, Perú; a male from Tirapata, Carabaya District, Perú; a male and female from near San Pedro, Antofogasta, Chile; and a male and an unsexed bird from Maimara, Jujuy, Argentina; also with a male and two females of *rubrirostris* from Laguna Blanca, Catamarca, Argentina; and two females from Aconquija and Cerro Muñoz, Tucumán.

The Matucana bird is clearly referable to typical *aurifrons* because of its small size (wing 85 mm.) and the development of the yellow sides and facial area. The series of *orbygnesius* are all larger (wing 102–104 mm.) and without so much yellow on the sides of the breast, forehead, base of malar region, and chin, but several specimens have an appreciable amount of yellow in these places and clearly show their relationship to *aurifrons*. The specimens of *rubrirostris*, with one exception, are washed with glaucous blue underneath and are comparatively distinct from *orbygnesius*, but one of the females from Laguna Blanca is not clearly separable from some of the specimens of *orbygnesius*, being much yellower and greener than the other *rubrirostris*. The Aconquija bird is about intermediate between the two series. Several specimens of this series also show traces of yellowish on the chin or forehead and all of them are perceptibly more yellowish on the sides of the breast. All three forms evidently belong to the same specific group.

Bubo virginianus nacurutu (Vieillot).

Strix nacurutu VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 7, p. 44, 1817—based on DAUBENTON, Pl. Enl. 383; Paraguay.

A male from Huánuco Viejo, December 24, 1922.

Compared with ten skins from Tierra del Fuego; Chubut, Patagonia; Mendoza; Concepción, Tucumán; Aconquija, Tucumán; Río Nireguao and Ramadilla, Atacama, Chile.

This material is totally inadequate for the study of this variable species. The Peruvian bird is most like a male from Mendoza (Lujan, Cacheute), Argentina and not greatly different from a Tierra del Fuego specimen, while the females from Concepción, Tucumán, are much buffier and with more widely spaced vermiculations; the Aconquija female is more cinnamomeous with much finer vermiculations. The Patagonian skin is pale but whitish rather than ochraceous. The Chilean specimens are about as dark as the Peruvian bird but with coarser vermiculations. No satisfactory grouping of this material can be made without studying a considerably larger series, and I refer the Peruvian bird to *nacurutu* mainly on the basis of Chapman's identification of Urubamba specimens as that race (Bull. U. S. Nat. Mus., **117**, p. 60, 1921).

Speotyto cunicularia nanodes Berlepsch and Stolzmann.

S(peotyto) cunicularia nanodes BERLEPSCH and STOLZMANN, P. Z. S. London, 1892, p. 388—Lima, Perú; Warsaw Mus.

Two females from Vitarte, April 26, 1922; a male from Chosica, April 27.

Compared with five males of *cunicularia* from Atacama, Coquimbo, and Concepción, Chile; also with the type of *intermedia* from Pacasmayo, Perú.

The Vitarte and Chosica birds are virtual topotypes of *nanodes*. They are rather blacker, less brownish, than *cunicularia* and are smaller (wing of male 168 mm., females 165, 166; as against 172–190 for the males of *cunicularia*). The type of *intermedia* matches the smallest female of *nanodes* in size but is even paler, more sandy brown, than *cunicularia*.

Glaucidium brasilianum brasilianum (Gmelin).

Strix brasiliana GMELIN, Syst. Nat., 1, (1), p. 289, 1788—based on the Caburé of BRISSON (ex MARCGRAVE); n. e. Brazil; Ceará suggested by HELLMAYR, 1929.

A male from Santa Eulalia, April 19, 1922; two males and two females from Huánuco, July 24–30.

Compared with three males from Menucucho and a female from Hacienda Limón, Perú; a male and two females from Quixada and Juá, Ceará; a male from Ibiapaba, Piauhy; a female from Arara, Piauhy; a female from São Marcello, Bahia; a female from Rio de las Velhas, Minas Geraës; a female from Mangunça Island, Maranhão; a male from Quebrada de los Cuervos, Uruguay; a male, three females, and a bird of undetermined sex from Eldorado, Puerto Segundo, and Iguazú, Misiones, Argentina; and a female from Concepción, Tucumán, Argentina.

My Peruvian birds are all in gray phase except one Menucucho specimen which is neither the one nor the other, while the only specimen from near Ceará which is in the gray phase is a young bird in full molt. Judging by this specimen, however, the Peruvian birds are not distinguishable from typical *brasilianum*. The Argentine and Uruguayan specimens appear to be distinct by reason of browner upper parts without white spotting on the back and with the white markings of the tail forming rounded spots rather than bars. If really separable from *brasilianum* they probably will bear the name *ferox* Vieillot, based on Azara, Paraguay.

This little owl was known locally as "Puk-a-puk-a" from its rapidly reiterated note which is like the syllables "puk-puk-puk-puk-puk" It was heard frequently in the daytime as well as at night.

Steatornis caripensis Humboldt.

Steatornis caripensis HUMBOLDT, Rec. Obs. Zool. Anat. Comp., 2, p. 141, 1817—Caripe, Venezuela; type lost.

Steatornis caripensis var. *peruviana* TACZANOWSKI, Orn. Pér., 1, p. 199, 1884—Ninabamba, Perú; Warsaw Mus.

Three males and two females from Tingo Maria (collected by E. Heller), October 11, 1922.

Compared with two specimens from Oropuche River, Trinidad, and two Bogotá skins.

No constant differences can be detected in the Peruvian material. Taczanowski's race was described as differing from the typical form only by being smaller and having a more strongly graduated tail, but even these differences can not be found in the material before me.

Nyctibius griseus panamensis Ridgway.

Nyctibius griseus panamensis RIDGWAY, Proc. Biol. Soc. Wash., **25**, p. 91, 1912—Natá, Coclé, Panamá; U. S. Nat. Mus.

A male from Huachipa, October 5, 1922.

Compared with six skins from British Guiana, Brazil (Bahia), Argentina (Tucumán), and Colombia (Bogotá); also with three specimens of *jamaicensis* from the type locality.

The British Guianan skin probably represents fairly typical *griseus* and as Wetmore (Bull. U. S. Nat. Mus., **133**, p. 202, 1926) has referred Paraguayan birds to this form, the Bahian skins should belong to it also; they differ from the Guianan skin at hand principally by having the bars on the inner webs of the primaries rather more distinct. The Argentine specimens are the palest of the lot and have the bars on the primaries more distinct than in the rest of the series, almost as broad as the black interspaces. Their exact identity is doubtful. The Bogotá specimen is the most rufescent of the series and considerably larger than the Guianan example, and I believe that it can be referred to *panamensis*. My Peruvian skin is nearly as large but, while it is distinctly rufescent in places, a blackish coloration is predominant, making the bird much darker than the others.

Wetmore (l. c.) provisionally unites *cornutus* with *griseus* on the basis of Paraguayan skins. The Bahian skins now before me agree with Gould's description and plate of his *pectoralis* from "northern parts of Brazil"; one from São Amaro has the wing 248 mm. in length, almost precisely equal to the 9¾ inches specified by Gould. The Tucumán birds are considerably larger, 265 and 277 mm. in wing length and are thus closer to the Peruvian skin in this respect though farthest from it in coloration. The entire species is in need of revision by someone with a good series from all parts of its range.

When I first heard the weird call of this bird, the natives informed me that it was an "alma perdida" or "lost soul" which was abroad and which, like the "duende" or hobgoblin that inhabited the rivers, it was foolish to think of shooting. However, I found that the bird was not averse to coming when its call was imitated, and succeeded, one moonlit night, in luring one from the depths of the heavy forest to an opening among the trees where it could be obtained. It could just be seen high overhead like a knot on a limb, and only the movement of its head as it answered my imitation of its call showed me that it was the object of my search. The song was a clear, high-

pitched succession of notes dropping down the scale from A, G, and F to D and ending in a descending quaver. The snap of the bill between the notes could be plainly heard. When singing, the bird appeared to sit erect with head thrown backward.

Nyctidromus albicollis albicollis (Gmelin).

(Caprimulgus) albicollis GMELIN, Syst. Nat., **1**, (2), p. 1030, 1789—based on the White-throated Goatsucker of LATHAM, Cayenne.

Nyctidromus albicollis obscurus CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., **1**, (8), p. 301, 1915—Yurimaguas, Perú; Field Mus. Nat. Hist.

Two males and a female from Vista Alegre, August 27–29, 1922; a male from the Río Colorado, Chanchamayo Valley, January 30, 1923.

Compared with the type of *obscurus* from Yurimaguas and eight additional specimens from northern Perú (Hacienda Limón, Lagunas, Moyobamba, Rioja, and Río Utcubamba), twelve skins from Venezuela, two from Surinam, six from northern Brazil, two from Ecuador, and one from Colombia; also with ten specimens of *derbyanus* from southern Brazil and Bolivia.

The Peruvian specimens, including the type of *obscurus*, are not separable from typical *albicollis*. There is great variation in coloration throughout the series, with the two extremes of brown and sooty plumage quite different when compared with each other, but there are intermediates of every stage. The type of *obscurus* is a dark bird but it can be matched by specimens from near the type locality of *albicollis* while other Peruvian skins are as light in color as any from other regions.

The species was called locally "Tocuyo"—a very good onomatope of the birds' clearly whistled song.

Systellura decussata (Tschudi).

C(aprimulgus) decussatus TSCHUDI, Arch. Naturg., **10**, (1), p. 268, 1844—Perú; Mus. Neuchâtel.

Caprimulgus aequicaudatus PEALE in WILKES, U. S. Expl. Exped., **8**, p. 168, 1848—Callao, Perú; U. S. Nat. Mus.

A male from Chosica and a female from Santa Eulalia, April 27 and 23, 1922.

Compared with three males of *S. longirostris atripunctata* from Matucana and near Otuzco, Perú, and Río Loa, Antofogasta, Chile; a male and three females of *ruficervix* from Venezuela and Ecuador;

three males and four females of *bifasciata* from the provinces of Colchagua, Coquimbo, Ascención, Concepción, and Cautin, Chile; and a male of *longirostris* from Tucumán, Argentina, and a female from the Province of Buenos Aires.

I am not sure that *decussata* is not a member of the *longirostris* group. Some of the specimens of *bifasciata* are very close to the two specimens of *decussata* in coloration, being very little darker and with an identical pattern except that the spots on the primaries of *decussata* do not cross the shaft as they do in the Chilean birds. The size, of course, is different but the difference might be overcome in larger series. However, without having seen more specimens I do not like to propose specific identity.

At Santa Eulalia the bird was found inhabiting some ancient Inca ruins on the hillsides, hiding in dark corners and taking wing only when in danger of being trodden underfoot.

Systellura longirostris atripunctata Chapman.

Systellura ruficervix atripunctata CHAPMAN, Amer. Mus. Novit., 67, p. 2, 1923—Acobamba, Junín, Perú; Amer. Mus. Nat. Hist.

A male from Matucana, May 3, 1922.

Compared with the specimens mentioned under *S. decussata.*

The Matucana bird clearly shows the characters of this well-marked form. The locality is in a westward and downward extension of the Junín plateau, so far as this species is concerned, and not an upward extension of the coastal region where *decussata* is found.

I believe it best to place *atripunctata, bifasciata,* and *ruficervix* in the same specific group as *longirostris* of central Chile. One specimen of *bifasciata* from Paiguano, Coquimbo, shows the pale markings of the scapulars unusually rounded and with blackish frecklings concentrated in the middle to form a dusky area resembling (though not as sharply defined) those in *atripunctata.* In other respects the specimen clearly belongs to *bifasciata* and matches other skins from Coquimbo. On the other hand a male of *atripunctata* from near Otuzco, Perú, is about intermediate in characters between the Paiguano bird and the Matucana specimen, including the color of the rufous collar. Chapman (l. c.) has indicated that *bifasciata* and *longirostris* from Argentina are conspecific. Since the four forms are obvious geographic representatives, I believe that their relationship is best expressed by trinomials.

Streptoprocne zonaris albicincta (Cabanis).

Hemiprocne albicincta CABANIS, Journ. Orn., 1862, p. 165—"Mexico bis Guiana"; type from British Guiana; Berlin Mus.

Three males and one female from Vista Alegre, October 17, 1922.

Compared with a skin from "Peru" (U. S. Nat. Mus.), four skins from Bogotá (one in Amer. Mus. Nat. Hist.), two males from Dabeiba, Antioquia, Colombia, and one female from Río Chama, Venezuela; also with the type of *altissima* and two additional skins from Ecuador (Amer. Mus. Nat. Hist.); and a small series of *pallidifrons* from the West Indies, *mexicana* from Guatemala, and *zonaris* from Tucumán, Argentina, and Rio Grande do Sul, Brazil. No topotypes of *albicincta* examined.

The Peruvian birds compare well with the Colombian and Venezuelan specimens, although I have not been able to compare them with typical Guianan specimens. All of these differ from three Argentine and one Brazilian *zonaris* by smaller size and noticeably deeper black general coloration. The Tucumán specimens are even more recently collected than my Vista Alegre birds so there is no question of fading. Chapman (Bull. U. S. Nat. Mus., **117**, p. 65, 1921) identifies Peruvian specimens from the Urubamba region as *zonaris*, compared with a comparatively recent Rio skin. Apparently, therefore, both subspecies are found in Perú, *zonaris* in the extreme southeast and *albicincta* in the rest of the country. The size of my Peruvian specimens is rather indeterminate since they are in molt, but, so far as comparable, the measurements are the same as those of Colombian and Venezuelan skins.

The measurement of the specimens has brought out the fact that the length of the tail in these birds is probably greater than is usually recorded. Two of my males have the tail in full molt with the central plumes still in the sheath but with the outer ones apparently full-grown and beautifully fresh and unworn. The lengths of these outer rectrices are 83 and 82½ mm., respectively, whereas the maximum tail measurement as given by Ridgway (Bull. U. S. Nat. Mus., **50**, pt. 5, p. 698, 1911) is 72 mm. and by Chapman (Bull. Amer. Mus. Nat. Hist., **33**, p. 606, 1914) is 74 mm. The discrepancy at first appears to point to a possible racial difference but my third male furnishes evidence to the contrary. In this specimen, the rectricial molt is not so far advanced as in the other two birds and the outer rectrices are in the sheath while the central ones are the old worn plumes which have not yet been shed. The length of these worn feathers is matched by that of the correspondingly worn feathers of the Colom-

bian specimens, indicating that the extraordinary length of the tail in the Peruvian birds is due only to their fresh and unabraded condition. A swift's tail is subject to considerable wear and, as indicated by the present series, the loss in length during a season apparently may amount to ten per cent or more of the total length. It may be added that, in the fresh specimens, there appears to be a deeper emargination of the tail than is shown by Ridgway (t. c., pl. 27, fig. 2) or than is exhibited by worn specimens.

Cypseloides rutilus brunnitorques (Lafresnaye).

Chaetura brunnitorques LAFRESNAYE, Rev. Zool., 1844, p. 81—Colombia; Paris Mus.

One male from Chinchao, October 31, 1922.

Compared with seventeen additional skins (U. S. Nat. Mus. and Carnegie Mus.) from southeastern Mexico, Guatemala, Costa Rica, Venezuela, Colombia, and Perú; also with the type of *C. r. griseifrons* (U. S. Nat. Mus.).

Some variation is apparent throughout the series of *brunnitorques* in the depth of color and apparent width of the collar, the extent of the black throat patch, and the suggestion of ashy forehead and supra-loral line, but this variation is irregular and shows both extremes in different examples from the same general region.

One male, however, from Hacienda Llagueda, Perú (Field Mus. Nat. Hist., No. 45,251), taken March 12, 1912, is strikingly different from all the others in the direction of *griseifrons;* in fact its throat is even paler rufous than that of the type, it is equally ashy on the forehead, superciliary region, and lores, but is a trifle darker sooty on the back. It seems impossible not to refer it to *griseifrons*. Since it was taken in winter it apparently represents a migrating individual in winter quarters of this north-Mexican form. No other specimen I have seen from South America can be referred to it although only one of these, a male from Idma, Santa Ana, s. Perú, is likewise a winter bird, the remainder having been taken while the Mexican birds would have been on their breeding grounds in the north. It is possible that the Hacienda Llagueda specimen represents the extreme of individual variation in *brunnitorques*. If this is true, it may prove desirable to examine a good series of birds from Tepic, Mexico, and reconsider the status of *griseifrons*.

This pretty swift was seen at various places, in the gorge of the Huallaga River between Huánuco and Cerro de Pasco, in the vicinity of Panao, and in other mountainous localities, coursing and circling

in large flocks high in the air. Only once, at Chinchao, did a flock descend low enough to give an opportunity to secure a specimen.

Phaethornis guy apicalis (Tschudi).

Tr(ochilus) apicalis TSCHUDI (ex LICHTENSTEIN MS.), Arch. Naturg., **10**, (1), p. 296, 1844—Perú; Berlin Mus.

A female from Vista Alegre, August 17, 1922; a female from Chinchao, November 14.

Compared with ten specimens of *emiliae* from Bogotá and near Palmira, Colombia; San Cristóbal, Venezuela; and Ecuador (ex Buckley).

I can see no differences among the females of *emiliae* and those of *apicalis* except that the latter average smaller. The measurements of my two birds are: wing 56, 56½ mm.; tail 62, 64; culmen 35½, 37¼. The females of *emiliae* (four) measure: wing 58–62 mm.; tail 60–68; culmen 36½–41½. The differences might disappear in a larger series.

F. Heine (Journ. Orn., 1886, p. 177) examined the type of *apicalis* and identified it as equivalent to the later *emiliae*. More recent authors have overlooked the priority of Tschudi's name and placed it as a synonym of *emiliae* except Simon who (Hist. Nat. Troch., p. 258, footn. 4, 1921) noted the correct date but overlooked Heine's critical note on the type and was in doubt as to the positive identity of the name. If future studies show the Peruvian birds to be inseparable from Colombian skins, as suggested by Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 284, 1926), *emiliae* must be submerged under *apicalis*.

Pygmornis longuemarea atrimentalis Lawrence.

Phaethornis atrimentalis LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., **6**, p. 260, 1858—Napo, Ecuador; Amer. Mus. Nat. Hist.

Phaëthornis riojae BERLEPSCH, Ibis, 1889, p. 182—Rioja, n. Perú; Mus. Frankfort.

A female from Puerto Bermúdez, March 8, 1923.

Compared with two skins of *longuemarea* from Trinidad and "Guyana," a specimen of *striigularis* from Bogotá, and one of *subrufescens* from Río Dagua, Colombia.

The Peruvian specimen certainly is not specifically distinct from *longuemarea*, and *striigularis* and *subrufescens* seem to belong to the same group. My specimen agrees well with Lawrence's original

description of *atrimentalis* but geographically should belong to *riojae*. Dr. Hellmayr (MS.) reports that he has compared the type of *riojae* with certain skins from the Río Napo and later compared one of these skins with the type of *atrimentalis*, with the result of finding them racially inseparable. The type of *riojae* is an adult male and that of *atrimentalis* is an immature bird, which accounts for differences in the descriptions of the two specimens.

Eutoxeres condamini gracilis Berlepsch and Stolzmann.

Eutoxeres condaminei gracilis BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, p. 19—Vitoc, Perú; formerly Warsaw Mus., now lost.

A male from Vista Alegre, August 27, 1922; a female from Huachipa, October 3.

Compared with a skin from the Napo region, Ecuador (Buckley coll.).

The two Peruvian birds agree well with the original description of *gracilis* in most particulars. In comparison with the Ecuadorian skin they are slightly smaller with distinctly shorter bills (25 mm. as against 28½); the ochraceous streaks on the chest are a little broader; the purplish tone of the submarginal portion of the under tail-coverts is less strongly developed; the cinnamomeous color of the outer rectrices is somewhat paler, and the top of the head is a little blacker (possibly faded in the Napo skin). The general coloration of the upper parts is the same in the male from Vista Alegre as in the Napo specimen, but the female from Huachipa is a little clearer green. The patch on the side of the neck is much bluer in the male than in either of the other specimens.

This bird was found about the hanging flowers of a low bush in open parts of the tropical forest. The flowers were of such a shape that the bird was obliged to throw its head back to insert the tip of the bill, which followed the curves of the corolla as the head was returned to a normal position. The hummers did not remain long at the flowers but made away through the forest by rapid, direct flight, just above the ground, not pausing until out of sight. I noted nothing in the field or by dissection to explain the bald stripe on the top of the head which is not possessed by the allied species *E. aquila*.

Colibri iolotus (Gould).

Petasophora iolota GOULD, P. Z. S. London, 15, p. 9, 1847—Bolivia; British Mus.

Pinarolaema buckleyi GOULD, Ann. Nat. Hist., (5), 5, p. 489, 1882—Misque, Bolivia; melanism; British Mus.

Colibri iolatus brevipennis CORY, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 2, No. 1, p. 221, 1918—Caracas, Venezuela; Field Mus. Nat. Hist.

Four males from Matucana, April 29–May 3, 1922; two males from the mountains near Huánuco, 10,500 feet, June 9 and 12; a male from Panao, July 17; a male from Vista Alegre, August 19; four males and a female from Chinchao, October 22–24.

Compared with a male from Bolivia; thirteen males from Perú (Macate, Cajamarca, Hacienda Llagueda, and Río Utcubamba); three males and a female from "Ecuador"; nine skins from Colombia (Bogotá and Santa Marta Mts.); and nineteen males from Venezuela (Culata, Conejos, Sierra, Mucunutan, Escorial, Río Chama, and Caracas—the type of *brevipennis*).

No constant differences can be found in this series. The type of *brevipennis* is a small bird, but it is matched by skins from Perú and other localities both in size and coloration, while other Venezuelan specimens exhibit a range of variation too wide to make any separation advisable.

This species is very pugnacious and takes delight in driving away other individuals that come near it, especially those of smaller species. Its note is a sharp, "zeep, zeep, zeep," which it utters continuously while perched on the top of a bush or weed. On April 29, I found the nest of a pair of this species at Matucana. A large branch of a tree overhung a stream, and on the under side of the branch a slender twig was curved down and upward again to form a semicircular loop with just enough space between it and the large branch to hold the nest and allow head room for the brooding bird. Two white eggs were in the nest but they were too far advanced in incubation to be blown.

Colibri cyanotus cyanotus (Bourcier and Mulsant).

Trochilus cyanotus BOURCIER and MULSANT, Ann. Sci. Phys. Nat. Agric. Lyon, 6, p. 41, 1843—Caracas, Venezuela; Bourcier coll.?

Three males from Panao, July 4 and 5, 1922.

Compared with two males and an immature bird from Culata, Conejos, and Mérida, Venezuela, and three Bogotá skins; also with five skins of *cabanidis* from Costa Rica.

The Peruvian birds average paler and greener on the throat than the more northern specimens, some of which approach *cabanidis* rather closely.

This species was seen only in the neighborhood of Panao where the larger species *iolotus* also occurred. The present bird was easily

recognizable by its song, which was a flat, monotonous, "peter-dick, peter-dick, peter-dick," continued indefinitely and delivered from a perch on the top of a bush in the manner of the song of the larger species. It was not as aggressive in habits as *iolotus*.

Chlorostilbon prasinus phaeopygus (Tschudi).

Tr(ochilus) phaeopygus TSCHUDI (ex LICHTENSTEIN MS.), Arch. Naturg., **10**, (1), p. 297, 1844—Perú (probably Chanchamayo Valley); Berlin Mus.

Hylocharis daphne BONAPARTE, Rev. Mag. Zool., 1854, p. 255—Peru.

Three males and a female from Huánuco, July 20–27, 1922; three males from Chinchao, October 22–November 8; a male from Vista Alegre, August 23; a male from Río Cayumba (below Vista Alegre) collected by E. Heller, July 30.

Compared with a male from Chanchamayo.

I am indebted, for the synonymy of this race, to Dr. Hellmayr who has examined the type of Tschudi's *phaeopygus* and found it to be the form later described by Bonaparte as *daphne*.

Thalurania furcata tschudii Gould.

Thalurania tschudii GOULD, P. Z. S. London, 28, p. 312, 1860—Río Ucayali (Perú); Paris Mus.

Thalurania jelskii TACZANOWSKI, P. Z. S. London, 1874, p. 138—Soriano, Chanchamayo Valley, Perú; formerly Warsaw Mus., now lost.

Three males from Río Colorado, Chanchamayo Valley, January 31 and February 1, 1923.

Compared with two immature males from Moyobamba, Perú; also with seven males and six females of *bolivianus* from Bolivia (Buena Vista, Tres Arroyos, and one unspecified locality); seven males and a female of *furcata* from French Guiana; two males of *nigrofasciata* from "Ecuador" and "Bogotá"; two males of *intermedia* from Santarem, Brazil; six males and a female of *furcatoides* from Tury-assú and São Luis (Maranhão) and Utinga (Pará), Brazil; three males and two females of *fissilis* from British Guiana and Serra da Lua, Brazil; and ten males and five females of *baeri* from Tranqueira and Inhuma (Maranhão), São Marcello (Bahia), and Urucum de Corumbá (Matto Grosso), Brazil.

My Río Colorado specimens, one of which is beautifully adult, agree perfectly with Gould's description of *tschudii*, while they are practically topotypes of *jelskii*. Furthermore, Gould in describing

tschudii had before him a specimen collected by Tschudi in Perú. This must have come from near the Chanchamayo Valley since Tschudi did not get any farther north than that region in the tropical zone of the interior of Perú. Gould states that his species was matched exactly by Tschudi's bird which was also a topotype of the later-described *jelskii*. Consequently it is evident that *tschudii* and *jelskii* are synonymous.

Bolivian birds are separable by having the chest entirely violaceous without the greenish tinge present in *tschudii* and without so pronounced a blackish border on the sides of the breast posteriorly. A name is available for this race (long identified erroneously as *jelskii*) in *bolivianus* Boucard (Gen. Hum. Birds, p. 107, 1894—Bolivia).

My most fully plumaged bird has the rump strongly tinged with reddish purple as in *furcatoides*, the middle wing-coverts also are reddish purple, and the top of the head has suggestions of the same color though the crown is rather dark and inclined to glitter in certain lights.

Chrysuronia oenone josephinae (Bourcier and Mulsant).

T(rochilus) Josephinae BOURCIER and MULSANT, Rev. Zool., 1848, p. 272—loc. ign.; type?

Agyrtria Alleni ELLIOT, Auk, 5, p. 263, 1888—Bolivia; ♀; Amer. Mus. Nat. Hist.

Chrysuronia Buckleyi BOUCARD, Hum. Bird, 3, No. 1, p. 9, 1893—Bolivia; Paris Mus.

Ch(rysuronia) oenone intermedia HARTERT, Novit. Zool., 5, p. 519, 1898—Upper Amazons = Pebas, Perú (cf. HARTERT, Novit. Zool., 29, p. 406, 1922); Tring Mus.

A male from Chinchao, October 22, 1922; a male from Vista Alegre, August 18.

Compared with a male from Pebas and a female from Rioja, Perú, and with seven males and a female from Bolivia; also with seven skins of *oenone* from Ecuador, Colombia, Venezuela, and Trinidad.

Three of the Peruvian birds have the culmen 20, 20½ and 20½ mm. in length; the Vista Alegre example has it 19 mm. The Bolivian specimens show a variation of from 17 to 19 mm., averaging less than the Peruvian series. The Pebas example is topotypical of *intermedia* and should belong to that form (if it is distinct) which is described as having the chin blue, but there is no trace of blue on the chin in

this example. The Chinchao specimen shows a tiny trace of that color at the point of the chin but the other Peruvian specimens are inseparable from the Bolivian in coloration. The bill in *oenone* shows a variation of from 19 to 21 mm. without relation to locality, and the coloration of the series from different places is uniform, from which it appears that *longirostris, azurea,* and *brevirostris* are hardly entitled to recognition, although my series is too small to make this unquestionable. The individual variations exhibited by the specimens in hand seem to point to but two valid races, *oenone* and *josephinae.*

Leucippus chionogaster chionogaster (Tschudi).

Tr(ochilus) leucogaster TSCHUDI (nec GMELIN), Arch. Naturg., **10**, (1), p. 297, 1844—Perú; Mus. Neuchâtel.

Tr(ochilus) chionogaster TSCHUDI, Faun. Per., Aves, p. 39, 1845—new name for *Tr(ochilus) leucogaster* TSCHUDI.

Leucippus pallidus TACZANOWSKI, P. Z. S. London, 1874, p. 542—Huanta; young bird (cf. SZTOLCMAN, Ann. Zool. Mus. Pol. Hist. Nat., **5**, No. 4, p. 209, 1926); Warsaw Mus.?

Two males from Huánuco, May 24, 1922; two males from Chinchao, October 22 and 27.

Compared with thirteen specimens of *hypoleucus* from Parotani and Buena Vista, Bolivia, and Santa Ana, Tucumán, Argentina.

The Peruvian series is separable from the Bolivian and Argentine examples by having the flanks more broadly and strongly green. Other recorded differences of coloration and size do not hold in the present material.

I use the name *hypoleucus* Gould in preference to *turneri* Bourcier without other reason than the *auctorum plurimorum* principle; both names were published in November, 1846.

Amizilia amazilia amazilia (Lesson and Garnot).

Orthorynchus Amazilia LESSON and GARNOT in DUPERREY, Voy. Coquille, Zool., pl. 31, fig. 3, July 25, 1825—no loc.; Paris Mus.?

Orthorhynchus Amazilia LESSON in DUPERREY, Voy. Coquille, Zool., **1**, p. 683, April 3, 1830—Lima and Callao, Perú.

A male from Vitarte, April 26, 1922.

Compared with a female from Callao and a male labeled "Peru (Whitely)"; also with a male of *"leucophoea"* from Hacienda Llagueda (near Otuzco) and a skin labeled "Peru"; and a male of *dumerili* from Guayaquil, Ecuador.

The Vitarte bird is a virtual topotype and the Callao example exactly one. They and the third specimen agree with the characters of the typical race. I believe that the type locality of *"leucophoea"* of Reichenbach should be changed from "Sud Peru, Vulkan Arequipa" to "N. W. Perú." The type was collected by Warscewicz who in other instances is known to have labeled specimens wrongly. The bird in question has never been collected in Arequipa by any subsequent collectors, but numerous specimens have been taken in northwestern Perú which agree with Reichenbach's figure.

The Vitarte bird is so badly worn that the rufous margins of the belly have practically disappeared, leaving a black patch (formed by the black bases of the feathers) covering the area, which gives the specimen an unfamiliar appearance. There is a small black patch on each side of the breast formed in the same manner.

Lampraster branickii Taczanowski.

Lampraster branickii TACZANOWSKI, P. Z. S. London, 1874, p. 140, p. 21, fig 1—Monterico, Perú; formerly Warsaw Mus., now lost.

A male from Río Colorado, Chanchamayo Valley, February 16, 1923.

No specimens compared directly, but a skin, probably from Bolivia (Amer. Mus. Nat. Hist.), examined.

The present example agrees very well with the original description and plate. The species is close to *Agapeta* and *Clytolaema*.

Butler (Ibis, 1926, p. 338) already has suggested that if *Agapeta* is preoccupied by an earlier *Agapete* (which it is not, according to the recommendations of the International Commission of Zoological Nomenclature) the genus may well be called *Lampraster*, since the genera are hardly separable.

Only three other specimens of this rare bird are known to have been collected by ornithologists. The type was secured by Jelski at Monterico and is lost. Kalinowski obtained two at La Gloria, one of which is in the Warsaw Museum; the other was formerly in the Berlepsch collection, now at Frankfort, but disappeared some years ago. Two other native skins were found by Dr. Thomas Barbour attached to an Indian necklace in a museum in La Paz, Bolivia, supposed to have come from the Río Beni; one of the skins is in the Museum of Comparative Zoology and the other, which I have examined, is in the American Museum of Natural History.

My example was collected at the edge of the forest. It was found perched on a twig just inside the clearing along a roadside

through the plantation, and was the only individual of its kind observed.

Heliodoxa leadbeateri leadbeateri (Bourcier).

Trochilus leadbeateri BOURCIER, Rev. Zool., 1843, p. 102, April, 1843—Caracas, Venezuela; Paris Mus.

Tr(ochilus) Otero TSCHUDI, Arch. Naturg., **10**, (1), p. 298, 1844—Perú; Mus. Neuchâtel.

Leadbeatera grata BONAPARTE, Consp. Av., **1**, p 70, 1850—new name for *Trochilus leadbeateri* BOURCIER.

Coeligena sagittata REICHENBACH, Aufz. Colib , p. 23, 1854—N. Perú; Dresden Mus.?

Heliodoxa leadbeateri parvula BERLEPSCH, Journ. Orn., **35**, p. 320, 1887—Bogotá; Frankfort Mus.

A young male from Chinchao, October 23, 1922.

Compared with six males and two females from Bogotá and one male from San Augustin, Colombia; three males and a female from Sierra, Montañas, Nevados, and Mérida, Venezuela; and a male from Roquefaldas, Bolivia.

This material represents the various races which have been described from the region between Venezuela and Bolivia but I am unable to recognize more than one form in it. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 304, 1926), with a greater variety of material, reached the same conclusions.

Oreotrochilus estella stolzmanni Salvin.

Oreotrochilus stolzmanni SALVIN, Novit. Zool., **2**, p. 17, 1895—Huamachuco, Perú; British Mus.

Two males from La Quinua, May 15, 1922; two young males from the mountains near Huánuco, 12,500 feet, June 9; two males and a female from Huánuco Viejo, December 20 and 24.

Compared with three males and three females of *estella* from Putre, Tacna, a male from Quispicanchis, Marcapata District, two females from Tirapata, Carabaya, and a female labeled "Peru"; also a female and a male from Argentina and a male from Bolivia; compared also with five males and a female of *O. leucopleura* from Tucumán and Jujuy, Argentina, and "Chile."

The specimens from La Quinua are distinctly more bronzy and less greenish than those from a little farther north, which seems to indicate an approach toward the duller, less greenish upper parts of

estella. Most of the specimens of the latter form show traces of glossy blue on some of the rufous feathers of the middle belly; the Quispicanchis male, though immature, has a stronger bronzy luster on the upper parts than the other examples of *estella*, showing a tendency in the direction of *stolzmanni*. I would place *leucopleura* as another race of this species were it not for the fact that both *leucopleura* and *estella* have been recorded from the same localities in a few instances. Probably future investigations will show that the occurrences were winter visitations or that the examples in question were intermediates of a sort, but until such evidence is forthcoming it is best to leave the forms specifically distinct; *leucopleurus* is even closer in characters to *stolzmanni* than is *estella* which occurs between the others, a not unusual condition.

This species was often noted perching on the bare surface of the rocks in the temperate zone.

Patagona gigas peruviana Boucard.

Patagona gigas peruviana BOUCARD, Gen. Hum. Birds, p. 61, 1893—Perú = Tinta, Dept. Cuzco; Paris Mus.

Patagona gigas boliviana BOUCARD, l. c.—Bolivia; Paris Mus.

A male and female from Matucana, May 3, 1922; a female from Cullcui, Marañón River, December 10; a female from Huánuco Viejo, December 22.

Compared with twenty-three additional skins from Tinta, Hacienda Llagueda, Cajamarca, Macate, and Putre, Tacna; also with thirteen skins of *gigas* from Caldera, Coquimbo, Aconcagua, Limache, and Santiago, Chile, and Tucumán, Argentina.

The Peruvian birds, with one or two exceptions, are consistently larger than the Chilean skins, with longer wings and longer, heavier bills. They also, with one or two exceptions, are more rufescent on the under parts, sometimes very markedly so. Since Dr. Hellmayr plans to discuss the characters of these two races in a forthcoming paper on the birds of Chile, I will leave further details to his able pen.

The species was found only in the arid subtropical and temperate zones. One or two examples were seen near the town of Huánuco but were not secured. The birds were noted most commonly about the tall flowering spikes of various species of agave.

Aglaeactis castelnaudii (Bourcier and Mulsant).

T(rochilus) Castelnaudii BOURCIER and MULSANT, Rev. Zool., 1848, p. 270—Amér. mérid.; Paris Mus.

Two males and four females from the mountains near Huánuco, 11,500 and 12,200 feet, June 7–26, 1922.

No material for comparison.

The series is quite uniform. The males are darker and deeper in coloration than the females and have a somewhat more extensive patch of glittering color on the lower back; they also have longer wings and possibly shorter bills (the bill of one male is broken). The sexes are otherwise very much alike.

This hummer was obtained around patches of flowering plants in the small open glades of the woodland in the temperate zone.

Lafresnaya lafresnayi rectirostris Berlepsch and Stolzmann.

Lafresnayea saul rectirostris BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, p. 24—Pariayacu, Maraynioc, c. Perú; Warsaw Mus.

A male and two females from the mountains near Huánuco, 10,000–12.200 feet, June 2–23, 1922; two males and three females from Panao, July 5–15.

Compared with three males and a female of *gayi*(?) from Ecuador; five males and a female of *lafresnayi* from Bogotá, Colombia; and three males of *liriope*(?) from the Mérida region of Venezuela.

The Peruvian birds are distinguishable from the Ecuadorian series by a smaller bill and longer wing, a more bronzy green back, and a lighter (less bluish) green throat. The Venezuelan birds differ from both Ecuadorian and Peruvian specimens by even longer bill, more bronzy green middle rectrices, and distinctly greenish instead of purplish black tips on the outer rectrices. These characters seem to favor the recognition of the three subspecies mentioned, assigning the Venezuelan birds to the Santa Martan race, *liriope*. However, Brabourne and Chubb have attempted to designate Venezuela as type locality for *gayi*, though I can see no grounds for this designation, and to follow their action may necessitate dropping *liriope* as a synonym of the earlier name. Bourcier and Mulsant did not assign any type locality for their species, *gayi*, and there is no evidence that I can find to indicate that the types or type came from that region. At the date of the original description, 1846, there had been no collecting done in the Mérida region of Venezuela, and nowhere else in that country is the present species found. The original specimens may have come from Santa Marta, from western Colombia, or, like the type of *saül*, from Ecuador, but rather certainly not from Venezuela. In the absence of the original specimens it is impossible to say to what form they belonged and it might be better to drop the

name entirely and call the Ecuadorian birds *saul* until some definite information is obtainable—an unlikely happening if the types are lost.

In any case, the Peruvian birds are recognizable as *rectirostris* although the character of a relatively straight bill, mentioned in the original description, is valueless, having been based on an individual feature of the single specimen known to the describers.

Pterophanes cyanopterus (Fraser).

Ornismya Temminckii BOISSONNEAU (nec LESSON, 1829), Rev. Zool., 1839, p. 354—Bogotá, Colombia; type lost?

Trochilus cyanopterus FRASER, P. Z. S. London, 8, p. 17, 1840—Bogotá; type?

Pterophanes peruvianus BOUCARD, Gen. Hum. Birds, p. 263, March, 1895—Perú; Paris Mus.

Two males and two females from the mountains near Huánuco, 12,200 feet, June 9–28, 1922.

Compared with a male and two females from Bogotá, Colombia, a male from Ecuador, and a male from Bolivia.

Only the Bolivian bird and one Peruvian skin are perfectly adult and they are almost exactly alike in coloration, though the Peruvian bird is a little darker on the top of the head. The other Huánuco male is nearly adult and matches the Bolivian bird in the color of the crown, but has a mixture of rufous on throat and crissum and has the remiges dull, only tinged with blue at the base on the under side. The other males in the series are like this young bird but with even more rufous on the under side. Such differences as exist are evidently those of age and individual variation. The characters of *peruvianus* are not apparent in any of the Peruvian or Bolivian specimens. The females from Colombia and Perú are alike.

This handsome species was rather uncommon. It was found only at high elevations about the brilliant pink flowers of a certain spiny-stemmed tree, and not many of the trees were observed in blossom. In flying, the wings have a slow, butterfly-like motion that is quite unlike the usual hummingbird flight and which may have some relation to the unusual brilliancy of coloration of the remiges. This coloration would not be exhibited to best advantage if the wings were vibrated at the usual rapidity of a hummer's flight, but is distinctly noticeable as displayed by the present species.

Helianthea violifera dichroura Taczanowski.

Helianthea dichroura TACZANOWSKI, P. Z. S. London, 1874, p. 138—Maraynioc, Perú; Warsaw Mus.?

A male from the mountains near Huánuco, 10,500 feet, June 14, 1922; a male from above Panao, July 10.

Compared with a male and female of *osculans* from Limbani, Carabaya, Perú.

From *dichroura* through *osculans* to *violifera* (judging by various descriptions of the last named), there is a progression of characters shown by a gradual increase of the rufous on belly, tail, and rump with a corresponding decrease in the amount of green on those parts. The present specimens show an approach to one of the characters of *violifera* which is not shared by *osculans*. This is a narrow white band on the breast, quite distinct in one example but prominent only on the sides in the other. The frontal patch in one example shows a trace of blue on the posterior portion, when viewed in certain lights, that may be taken as a trend toward the blue patch of *osculans*.

Ensifera ensifera (Boissonneau).

Ornismya ensifera BOISSONNEAU, Rev. Zool., 1839, p. 354—Bogotá; type lost?

Trochilus derbianus FRASER, P. Z. S. London, 8, p. 16, 1840—Bogotá.

Docimastes Schliephackei HEINE, Journ. Orn., 11, p. 215, 1863—Riobamba, Ecuador; Halberstadt Mus.

Nine males, one female, and one probable female from the mountains near Huánuco, June 1–16, 1922.

Compared with five males and two females from Bogotá.

The Bogotá material is not entirely satisfactory and I am not sure that the Peruvian specimens represent the same form as that found in the north. The greatest difference noticeable is in the color of the throat of the adult males, which is deep black with green and purple reflections in the Peruvian skins and dull brownish black with faint greenish reflections in the Bogotá examples. There is no constant difference in size and the difference in color may be due to post-mortem change in the older material.

This interesting species was not uncommon about a certain long-tubed flower, for entering which its extraordinary bill was perfectly adapted. The hum of the rapidly moving wings was very pronounced when the bird was poised before the blossoms, and was different enough in pitch from the sound made by other species to be recognizable and, in many cases, to give the first intimation that one of these birds was in the immediate vicinity. When resting on a perch, the hummer carried its bill pointing upwards at less than ten

degrees from the vertical; when flying it carried the bill nearly horizontally.

Ocreatus peruanus (Gould).

Spathura peruana GOULD, Mon. Troch., 3, p. 164, 1849—Moyobamba, Perú; Mathews coll., Hackney, London.

An adult male from Huachipa, September 28, 1922; two young males and a female from Chinchao, October 23–November 18.

Compared with specimens of *melananthera* from Ecuador, *underwoodi* from Colombia, and *discifer* from Venezuela.

Without specimens from northern Perú, eastern Ecuador, southern Perú, and Bolivia to furnish a means of studying the relationships and variations of *solstitialis*, typical *peruanus*, *annae* and *rufocaligatus*, it is difficult to do much with the present specimens. Judging by the accounts of Simon and of Hartert, my adult male agrees best with *peruanus* and the female and young males are probably the same.

The Huachipa bird was taken in the depths of the tropical forest; the specimens from Chinchao were found about the blossoms of the "pacay" trees in the more or less open plantation.

Lesbia nuna pallidiventris (Simon).

Psalidoprymna pallidiventris SIMON, Novit. Zool., 9, p. 182, 1902—Algamarca, Araqueda, "prov. Cojabamba" = Prov. Cajamarca, Perú; Simon coll., Paris.

P. gracilis labilis SIMON, Hist. Nat. Troch., 1, 194, 1921—Cajabamba, Perú; Simon coll., Paris.

P. gracilis longicauda SIMON, loc. cit.—Otuzco, Chitahuara, Perú; Simon coll., Paris.

Two males from Cullcui, Marañón River, December 14, 1922.

Compared with a male from Tabaconas (Mus. Comp. Zool.), one from Macate, two males from Hacienda Llagueda (near Otuzco), a male from Callahuate, and a female from Río Utcubamba, Perú; also with one male of *nuna* from Paucartambo, Perú; one of *boliviana* from "Bolivia"; three males and a female of *chlorura* from near Huánuco and Chinchao, Perú; three males of *gracilis* from "Ecuador"; and four males and four females of *gouldii* from "Bogotá."

This series presents a perfect specific group ranging from Colombia to Bolivia. The characters are variously progressive. The length of the bill gradually increases from *gouldii* to *boliviana* as does

the extent of buffy margins on the under tail-coverts. The outer rectrices are largely glossed with green in *gouldii*, *gracilis*, and *chlorura;* without green gloss in *nuna* and *boliviana*, and variable in *pallidiventris*. The extremes in distribution, *gouldii* and *boliviana*, show no pale outer margins of the outer rectrices beyond the tips of the subexternal pair; *gracilis* and *pallidiventris* are alike in this respect and show a centimeter or more of pale grayish margin, visible on the closed tail but not sharply defined terminally; *chlorura* has only a few millimeters of pale margin so visible, but this amount is paler and whiter than in *pallidiventris* and rather sharply terminated. All agree in the truncate gorget and the extensive green on the four inner pairs of rectrices, which distinguish this group from *victoriae* and its allies. Judging by available information, the *nuna* group occupies slightly lower elevations in the mountains than the *victoriae* group, of which more will be said under *chlorura*.

Simon's trinomials for *"labilis"* and *"longicauda"* are intended as names for individual variants, not for geographic subspecies, since both forms and his typical *pallidiventris* are from the same region. In the present series, the two Hacienda Llagueda birds show two of the extremes, one with no greenish lights on the outer rectrices, the other greenish in certain positions though much duller than in *chlorura*, *gracilis*, and *gouldii*. The Macate bird has noticeable green; the Callahuate skin has none; the Cullcui birds are intermediate. The form appears to be intermediate between *gracilis* and *chlorura* and apparently is variable.

Gray's designation of *Trochilus forficatus* Linnaeus as type of the genus *Lesbia* Lesson is invalid, since that species was not among those originally included in the genus; the next valid designation is that of *nuna* by Salvin, 1892, and since *Lesbia* antedates *Psalidoprymna* the former name must be used for the present genus.

Lesbia nuna chlorura Gould.

Lesbia chlorura GOULD, P. Z. S. London, 1871, p. 504—supposed to be Perú; type lost.

Three males from the mountains above Huánuco, 10,500 feet, June 3–8, 1922; a female from Chinchao, November 3.

Compared with the material noted under *L. n. pallidiventris*.

Since the time Gould described this species from a single skin of unknown origin, there has been considerable speculation as to its relationships and habitat and even its identity. A careful study of the present material reveals the fact that it belongs to the long lost

chlorura, that this species is related to the *nuna-gouldii* group, and that it inhabits the central Andes of Perú adjacent to the Junín plateau (at least northward) at about 10,000 feet elevation. The adult males agree perfectly with Gould's description, having the outer rectrices strongly glossed with green as in *gouldii*, and having the bill distinctly longer than in *gouldii* and *gracilis* (also longer than in *pallidiventris* but shorter than in *nuna*). Aside from the difference in the size of the bill, the outer margins of the outer rectrices are paler (whiter) basally than in any other race of *nuna*, with about 4–6 mm. showing beyond the tips of the penultimate pair (see account of *pallidiventris*), and the under tail-coverts are largely brownish buff with a small central spot of greenish.

The female from Chinchao appears to belong to this race rather than to *pallidiventris* by reason of similar under tail-coverts and long bill, though the latter is slightly shorter than in the males. Culmen in males, 12¼ mm.; in the female, 11¾ mm.

The Huánuco birds all were taken at an elevation of approximately 10,500 feet. Some distance higher on the same mountain slopes, at an elevation of about 12,000 feet, the species is replaced by a member of another group, *P. victoriae juliae*. Apparently these two species are altitudinally distinct.

Lesbia victoriae juliae (Hartert).

Psalidoprymna juliae HARTERT, Novit. Zool., 6, p. 75, 1899—Cajabamba, n. Perú; Tring Mus.

Four males from the mountains near Huánuco, 12,000 feet, June 2–9, 1922.

Compared with nine males and two females of *victoriae* and "*aequatorialis*" from Bogotá, Colombia, and "Ecuador," respectively.

The Peruvian birds are separable from *victoriae* (which I am unable to subdivide into Colombian and Ecuadorian races) by shorter bill and tail and paler buffy under tail-coverts.

This species was found about low beds of flowers on the high plains at the top of the Andes, in the *puna* zone. Lower down the slopes, at 10,000 feet and thereabouts, in the humid subtropical and lower temperate zones, *L. nuna chlorura* was obtained.

Polyonymus caroli (Bourcier).

Trochilus caroli BOURCIER, P. Z. S. London, 14, p. 48, 1847—no loc.; type lost.

One adult male, two young males and five females from Cullcui, Marañón River, December 14, 1922; one young male from Matucana, May 2.

Compared with a young male from Macate; two males from Chipa, Junín, and Otuzco or Cajabamba (O. T. Baron coll.), Perú (Amer. Mus. Nat. Hist.); and a male and female from Lima and (probably) Tambo de Aza, Vitoc Valley (U. S. Nat. Mus.).

Among the adult males there is no appreciable variation in the color of the throat, but the females have the gorget somewhat paler red with the feathers broadly margined with whitish, giving a spotted appearance. M. Jacques Berlioz of the Paris Museum writes me that seven or eight male specimens in various museums in Paris are all much paler beneath with the throat more pinkish than my Cullcui bird, and he believes that they must be younger than mine.

Bourcier described this species from a specimen which he saw in the collection of birds belonging to Edward Wilson, which Wilson later presented to the Academy of Natural Sciences of Philadelphia; the type, if still in existence, should be in that institution. Unfortunately it seems never to have reached Philadelphia since no skin of the species is in the museum of the Academy; nor is there any record of such in the catalogue of the Wilson collection, as I have ascertained through the kindness of Mr. C. E. Underdown, formerly of the Academy, who made a search for me through the collection and records. Probably the specimen was among others lost in transit, as mentioned in Jardine's Contributions to Ornithology, 1852, p. 59.

My single adult male example of this rare hummingbird was collected at camp as it hovered about the blossoms of a spreading cactus plant that grew in the shelter of the mud walls enclosing the compound. Another was seen later in the dense and spiny thicket along the river but could not be secured.

Tephrolesbia griseiventris (Taczanowski).

Cynanthus griseiventris TACZANOWSKI, P. Z. S. London, 1883, p. 72—Paucal, Perú; Raimondi coll., Lima, Perú.

A female from Cullcui, Marañón River, December 14, 1922.

Compared with an adult male, four young males, and five females of *Polyonymus caroli* from the same locality and from Matucana and Macate.

The present species is doubtfully separable generically from *Polyonymus caroli*. Simon compared his genus *Tephrolesbia* only with *"Lesbia"* (=*Aglaiocercus*) and did not state how it differed from *Polyonymus* which he placed in a quite different "group." Until more specimens of the present bird are available for comparison I am unable to examine the genus critically.

Metallura phoebe (Delattre and Lesson).

O(rnysmia) phoebe DELATTRE and LESSON, Rev. Zool., 2, p. 17, 1839—Andes of Perú = probably highlands of Junín (Delattre coll.); Paris Mus.

Tr(ochilus) opacus TSCHUDI (ex LICHTENSTEIN MS.), Arch. Naturg., **10**, (1), p. 296, 1844—Perú = probably highlands of Junín (B. Philippi coll.); Berlin Mus.

Trochilus cupricauda GOULD, P. Z. S. London, **14**, p. 87, 1846—"Bolivia" = Palca, Tacna, Perú; British Mus.

Metallura jelskii CABANIS, Journ. Orn., **22**, p. 99, 1874—"(Maraynioc?)"; Berlin Mus.

Two males from La Quinua, May 15, 1922; a male and a female from Cullcui, Marañón River, December 10 and 12.

Compared with a male from Cajamarca.

The measurements given by Cabanis for his *jelskii* are slightly larger than those of the present series but the coloration appears to agree. Cabanis compared only the size of his bird with that of *opaca* (which probably came from the same general region) so that his diagnosis is not very informative. Recent authors have been unable to recognize more than one form.

Metallura tyrianthina septentrionalis Hartert.

Metallura smaragdinicollis septentrionalis HARTERT, Novit. Zool., **6**, p. 73, 1899—Perú = Huamachuco; Tring Mus.

Five males and two females from the mountains near Huánuco, 10,500 feet, June 1–14, 1922; three males and one female from Panao, July 4–15.

Compared with two females from Molinopampa; also with a male and two females of *quitensis* from "Ecuador"; a male topotype of "*peruviana*" (=*smaragdinicollis*) from Ccachupata, Perú, and a female from Bolivia; a small series of both sexes of *tyrianthina* from Páramo de Tamá, Venezuela and Colombia, and Santa Elena, Santa Isabel, and Bogotá, Colombia; and a series of *oreopola* from the Mérida region of Venezuela.

While all the Huánuco and Panao birds are not clearly separable from the topotype of *peruviana* (which Hartert synonymized with *smaragdinicollis*), several of them are referable to Hartert's *septentrionalis*, having the pale subterminal portions of the pectoral feathers rather broadly exposed. Probably this series represents an intermediate condition showing affinities to both neighbors. The females are rather more deeply rufescent on the breast than either

the Molinopampa or Bolivian specimens; two are lightly spotted like one of the Molinopampa birds; one is a little more heavily spotted than the other Molinopampa skin. The lightly spotted female from Molinopampa has the tail considerably more bronzy than the other and shows more resemblance in that particular to *quitensis* than to its companion. I follow Hartert, 1922, in placing *septentrionalis* as a subspecies of *tyrianthina*.

Metallura eupogon (Cabanis).

Urolampra eupogon CABANIS, Journ. Orn., 22, p. 97, 1874—Maraynioc, Perú; Berlin Mus.

Metallura Hedvigae TACZANOWSKI, P. Z. S. London, 1874, p. 139, pl. 21, fig. 2—Maraynioc, Perú; Warsaw Mus.?

Five males and three females from the mountains near Huánuco, 12,200 feet, June 21–30, 1922.

Compared with the type of *Laticauda rubriginosa* Cory (=*M. theresiae*) from near Balsas, Perú, and with two young specimens of *M. aeneocauda* from Bolivia.

These three species (and probably others of which I have no material) are closely related to each other, having many characters in common which distinguish them from the *tyrianthina* group, *M. phoebe*, and possibly other congeners. Without specimens of the other related forms it is impossible to discuss these features in detail.

This fiery-throated hummer has been considered rather rare, but I found it not uncommon at the very tops of the mountains near Huánuco and on the slopes immediately below. It inhabited low bushes and plants but a few feet high, often clinging to the under side of the twigs in the manner of a titmouse. On cold, bleak mornings the little creatures were chilled and sluggish in their movements, but regained their customary activity when the sun had dispelled the mists that hung about the hilltops.

Chalcostigma stanleyi versigularis Zimmer.

Chalcostigma stanleyi versigularis ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 52, 1924; Field Mus. Nat. Hist.

Three males (including the type) and one female from the mountains near Huánuco, 12,200 feet, June 26 and 30, 1922.

Compared with a male of *vulcani* from Quispicanchis, Marcapata, Perú (U. S. Nat. Mus.), and five males and one female of *stanleyi* from Ecuador (four in Amer. Mus. Nat. Hist.).

The species was found about the blossoms of certain trees at the margins of the wooded "pockets" at timberline, and also among the low bushes scattered on the hillsides near the streams. It often perched on the tops of the bushes in readiness to dart away at the approach of danger.

Aglaiocercus kingii smaragdinus (Gould).

Trochilus smaragdinus GOULD, P. Z. S. London, **14**, p. 85, 1846—Bolivia; British Mus.

Cynanthus bolivianus GOULD, Ann. Nat. Hist., (5), **5**, p. 489, 1880—Bolivia; British Mus.

Three males from Chinchao, October 23 and November 20, 1922.

Compared with a male from Poco Tambo, Perú, a male and female from "Bolivia" (Buckley coll.), and a male from Roquefalda, Bolivia; also with seven males and a female of *coelestis* from Mindo, Gualea, and "Ecuador"; six males and a female of *mocoa* from Baeza, Río Pastaza, and "Ecuador," and La Candela, Colombia; two Bogotá skins of *emmae;* nine males and five females of *kingii* from "Bogotá"; and eleven males of *caudata* from Sierra, Nevados, Río Chama, and Río Mucujón, Venezuela.

The specimens from Bolivia to Poco Tambo, Perú, show little variation among themselves and all are referable to *smaragdinus.* This is closest to *mocoa* among the related forms.

It becomes necessary to provide a new name for the present genus owing to the fact that the various names previously applied are all unavailable. *Cynanthus* Swainson, 1827 (Philos. Mag., n. s., **1**, p. 441, 1827), type *C. latirostris* Swainson (cf. Stone, Auk, **24**, p. 192, 1907), preoccupies the name *Cynanthus. Cyanolesbia* Stejneger was proposed as a new name for *Cynanthus* Swainson, 1837 (Classif. Birds, **2**, p. 330, 1837), type, by monotypy, *T. forficatus* Linnaeus =*Trochilus polytmus* Linnaeus; therefore *Cyanolesbia*=*Trochilus* Linnaeus, 1758. *Lesbia* Lesson, 1833 (Troch. Index Gen., p. XVII, 1833) contained three species, *sapho, nuna,* and *kingii.* Gray three times designated *Trochilus forficatus* Linnaeus as type species under the mistaken notion that *kingii* was a synonym, but since *forficatus* was not among the original species, these designations are invalid. Salvin (Cat. Birds Brit. Mus., **16**, p. 146, 1892) seems to have been the first to comply with modern requirements when he designated *nuna* as the type of *Lesbia.* Incidentally this requires the use of *Lesbia* for the genus known recently as *Psalidoprymna,* but it leaves the present genus without a name. To supply the deficiency I

propose the name *Aglaiocercus* with *Ornismya kingii* Lesson as type species.

Rhodopis vesper vesper (Lesson).

Ornismya Vesper LESSON, Hist. Nat. Ois.-Mouches, pp. XV, 85, pl. 19, 1829—"Chili" (possibly Tarapacá but possibly s. w. Perú); Paris Mus.

A male and a doubtful male from Santa Eulalia, April 23 and 24, 1922.

Compared with a male from Islay, Arequipa, Perú, and two males and two females from Pica, Tarapacá, Chile; also with seven males of *atacamensis* from Caldera, Chile.

The Tarapacá males have slightly longer bills than the Peruvian males, probably indicating an approach toward the still smaller *atacamensis*.

The species was found about certain flowering cacti on the arid hillside.

Thaumastura cora Lesson and Garnot.

Orthorhynchus Cora LESSON and GARNOT in DUPERREY, Voy. Coquille, Zool., pl. 31, fig. 4, 1827—(in later text) between Callao and Lima, Perú; Paris Mus.?

Thaumastura cora montana CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 286, 1913—Hacienda Llagueda, northeast of Otuzco, Perú; Field Mus. Nat. Hist.

T(haumastura) Cora var. *cyanescens* SIMON, Hist. Nat. Troch., p. 224, 1921—Tulpo, Perú; Simon coll., Paris.

Five males from Matucana, April 28 and May 1, 1922; a female from Santa Eulalia, April 23; a probable female from Chosica, April 16.

Compared with a male from Maynapall; two males from Callahuate, a male from "Perú" (Delattre skin, probably from near Lima), and the type of *montana* from Hacienda Llagueda.

The type of *montana* has a little less of the bluish reflections on the side of the throat than the other skins, but a few feathers show the same bluish tone; the Callahuate and Maynapall specimens are from the same general region and are perfectly typical *cora*. The other characters mentioned by Cory are perfectly normal characteristics of the species, the author having been misled by the old and faded Delattre skin which he used for comparison. Simon's "var. *cyanescens*" is nothing but an individual variant which the author

picked out from several skins taken at the same locality, the rest of which were normal. It could not have been intended as a geographic subspecies.

Calliphlox amethystina (Boddaert).

Trochilus amethystinus BODDAERT, Tabl. Pl. Enl., p. 41, 1783—based on DAUBENTON, Pl. Enl. 672, fig. 1; Cayenne.

T(rochilus) Ruficaudus VIEILLOT, Tabl. Ency. Méth., Orn., 2, p. 573, 1822—Amérique méridionale; Laugier coll.?

T(rochilus) Minullus VIEILLOT, t. c., p. 574, 1822—Brazil; Laugier coll.?

Ornismya amethystoides LESSON, Troch., p. 79, pls. 25–27, 1832—Brazil.

Ornismya orthura LESSON, Troch., p. 85, pls. 28, 29, 1832—Cayenne; Amer. Mus. Nat. Hist.

Calliphlox roraimae BOUCARD, Hum. Bird, 1, p. 30, 1891—British Guiana; Paris Mus.

Two males from Vista Alegre, August 18 and 30, 1922.

Compared with fifty-one additional specimens from Cayenne (including the types of *Ornismya orthura*), British Guiana (Mt. Roraima and Merume Mts.), Venezuela (San German de Upata, Azulita, Sierra de Carabobo, Sacupana?, La Bomba, San Felix, and El Callao), and Brazil (Chapada, Minas Geraës, Tury-assú, Tranqueira, Descalvados, and Rio?) (twenty-four skins in Amer. Mus. Nat. Hist.; twenty-two skins in Carnegie Mus.).

A very careful study of this material has shown several interesting facts with reference to the sequence of plumages. Immature examples of both sexes have the tail tipped with white; adult females have the tail tipped with cinnamon-rufous; adult males have a long forked tail, sometimes with traces of white tips on the outer rectrices; young males may acquire the amethystine gorget before the long tail or may develop the forked tail first. Two specimens from San German de Upata, Venezuela (Carnegie Mus.) have the long feathers of the tail just appearing while the throat patch is undeveloped. Apparently adult males with the full gorget but with a short, white-tipped tail were described as *Ornismya orthura*, but the types of *Ornismya orthura* are not fully adult; one has the gorget still showing traces of brownish feathers on the lateral borders; the other has only a few amethystine feathers on the throat which is spotted with brown centrally. Both have traces of cinnamon on the flanks as do other short-tailed birds with a full gorget, while the same condition is shown by long-tailed birds with undeveloped gorget; fully adult males have lost the cinnamomeous tinge and have green flanks.

The two Peruvian birds have longer bills and narrower white breast bands than the Venezuelan and Guianan specimens but a larger series will be required to establish the constancy of this difference.

Myrtis fanny (Lesson).

Ornismya fanny LESSON, Ann. Sci. Nat., (2), 9, p. 170, 1838—"Mexique," errore.

Ornismya labrador BOURCIER, Ann. Sci. Phys. Nat. Agric. Lyon, 2, p. 389, 1839—"Mexique," errore.

Thaumastura francesiae SCLATER, Cat. Amer. Birds, p. 299, 1862—nom. emend.

A male from Cullcui, Marañón River, December 15, 1922; a female from Chosica, April 16.

Compared with two adult males, three young males, and three females from Macate, a female from Trujillo, and a female from Chachapoyas, Perú, and two males and a female from "Ecuador" (ex Buckley). The Ecuadorian males seem to be a slight tint lighter and redder on the lower part of the gorget than the Peruvian specimens, and their bills are 16 and 17½ mm. long as compared with 17½ and 18 for the three adult Peruvian males, but the series is too small to show the value of this variation. The Ecuadorian female is somewhat more deeply rufescent below than the corresponding Peruvian females.

Chaetocercus bombus Gould.

Chaetocercus bombus GOULD, P. Z. S. London, 1870, p. 804—Citado, Ecuador; British Mus.

A female from Chinchao, October 22, 1922.

Compared with a topotypical male and a female from between Chimborazo and Chimbo, Ecuador.

The Chinchao female is more bronzy green above and more deeply rufescent below than the Ecuadorian female, and is a little larger in all measurements.

Chaetocercus mulsanti (Bourcier).

Ornismya Mulsanti BOURCIER, Ann. Soc. Phys. Nat. Agric. Lyon, 5, p. 344, pl. 20, 1842—Colombia.

A male and two females from Chinchao, October 23 and November 16, 1922.

Compared with a male from Quito, Ecuador, a female from "Bolivia," and two males and three females from Bogotá, Colombia.

No differences are noticeable among these specimens.

The species was taken from about the flowers of the "pacay" trees where they occurred in company with *C. bombus* and a clear-winged moth which was sometimes difficult to distinguish from the birds at a little distance.

Trogonurus collaris collaris (Vieillot).

Trogon collaris VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 8, p. 320, 1817—Cayenne.

Two males and two females from Huachipa, September 20–26, 1922.

Compared with three males and a female from Tobago, a male "Orinoco" skin, a male "Bogotá" skin, and a female from Maracay, Venezuela.

There are certain differences apparent between the Peruvian specimens and the rest of the series, principally in the narrower black bars on the outer rectrices and the smaller black throat patch, but without much more material, including specimens from Cayenne, I am unable to determine the value of these characters.

The species was heard rather commonly in the tropical forest at Huachipa and responded rather readily to an imitation of its song. This was easily imitated, being a clearly whistled, "who-ít, keé-oo, hé-oo-hé-oo-hé-oo-hé-oo-hé-oo." The males would reply at once and would often approach closely overhead, sometimes remaining for a long time but otherwise disappearing when their curiosity was satisfied. Once I had five males in the trees about me at the same time. Occasionally a female also would approach. The females uttered a sudden, explosive, "chirr-rr-rr" accompanied by a jerk of the tail from dependent vertical to horizontal, while the neck was quite extended, not shortened as in positions of rest.

Trogonurus rufus devillei Cabanis and Heine.

?A(ganus) (*Pothinus* in text) *Devillei* CABANIS and HEINE, Mus. Hein., 4, (1), p. 191, 1863—based on *Trogon meridionalis* DEVILLE and DES MURS (nec SWAINSON), Rev. Mag. Zool., (2), 1, p. 333, 1849; Santa Maria (= south of Pebas, Péru?); type no longer in Paris Mus.?

An adult and a young male from Puerto Bermúdez, March 17 and 15, 1923.

Compared with three specimens of *rufus* from British Guiana, fifteen of *venellus* from Costa Rica, one *cupreicaudus* from w. Colombia, and one *chrysochlorus* from São Sebastião, São Paulo, Brazil.

The Puerto Bermúdez adult male differs from the males of the other races at hand in the beautiful coppery color of the tail. This is as described for *cupreicaudus* from Colombia. The specimen of that race at hand shows little trace of coppery and therefore must be atypical, and I am unable to say how the form may differ from *devillei*.

The type locality, Santa Maria, is given by Deville and Des Murs without more definite allocation than that it is the same general region as Ega, on the Yaguas River on the right bank of the upper Amazon. A careful perusal of Castelnau's account of the travels of his expedition has elicited the following information (Expéd. Amér. Sud, Hist. Voyage, **5**, pp. 15–27). Shortly after reaching Pebas, the party accompanied a resident missionary on a visit to his mission station, formerly called "Saint Jose" but then known as "Santa Maria de los Yaguas." This station was two days' travel from Pebas inland (i.e., away from the Amazon, evidently southward). After a short visit there, Castelnau returned to Pebas but Deville remained to make natural history collections. This must be the Santa Maria from which various upper-Amazonian birds were subsequently recorded. At any rate it evidently is in the region to which Puerto Bermúdez bears a close relation through the Ucayali River, and since my specimens agree with the description of Deville and Des Murs as well as with that of Cabanis and Heine, I have no hesitation in referring my specimens to the form in question.

I use the name *rufus* in preference to *curucui* of Linnaeus, which I consider to be misapplied to this species. As claimed by Ridgway (Bull. U. S. Nat. Mus., **50**, pt. 5, p. 764, footn., 1911), Linnaeus based his name principally on Edwards's plate (Gleanings, **3**, pl. 331) which has been accepted as depicting the present species. With this latter contention I am unable to agree. The plate shows too much red on the under parts for any of the *rufus* group and while it is not so bright as is shown by the red-bellied species in full, fresh plumage, a red specimen sometimes fades to a degree that is quite comparable to the plate. I have before me a specimen of *aurantiventris* from Costa Rica (Field Mus. No. 24,223) which has the belly faded to Salmon Orange with traces of Bittersweet Orange, matching Edwards's picture very closely and showing to what extent the color of a red-bellied species may change. Further than this, Edwards describes the upper wing-coverts as a light ash color with very fine

black lines making a mixed gray color. In both *rufus* and *collaris*, the two species to which the name *curucui* has been applied by various authors, the color rather is black with fine white lines which are large enough to be distinct as such, whereas in the *variegatus* group the arrangement is exactly as described by Edwards and the general effect of the extremely fine black lines on an ashy ground is that of a mixed gray color. For these reasons I believe that Edwards figured a faded specimen of the *variegatus* group; I am certain that he did not show the present species. I am quite in favor of dropping the name *curucui* as being of composite origin, possibly unidentifiable, and without type locality.

Chloroceryle americana americana (Gmelin).

(*Alcedo*) *americana* GMELIN, Syst. Nat., 1, (1), p. 451, 1788—based on DAUBENTON, Pl. Enl. 591, figs. 1, 2; Cayenne.

Two males and three females from Huánuco, July 28–August 10, 1922.

Compared with sixty-four additional skins from various parts of South America, representing several subspecies, as listed in the appended table.

The Guianan and Serra da Lua males are smaller than any of the others (wing 74 and 73 mm.); two males from Maranhão and one from Piauhy, Brazil, are slightly larger (wing 77, 77, 78); a male from Descalvados, Brazil, is still larger (wing 79); a male from Lake Valencia, Venezuela, matches the Descalvados bird; one from Buenavista, Bolivia, also matches it; and the males from Moyobamba and Lagunas, Perú, match the Maranhão specimens. All these males agree, furthermore, in having the white throat patch comparatively short, rather sharply defined against the rufous chest, and bounded laterally by well-marked dark malar stripes (not so well-marked in the Descalvados and Moyobamba specimens). The females from Guiana, Brazil, Venezuela, and northern Perú are not as small as the males but most of them have the dark malar stripes just as strongly marked. These birds, therefore, may be taken to represent typical *americana*, which seems to range over the Amazonian country from Guiana and Venezuela to southern Brazil, northern Bolivia, and northern Perú.

Three Uruguayan males have the wing 77, 78, and 80 mm.; eight Argentine males measure 78, 79, 79, 80, 80½, 80½, 81, 84. In addition to their smaller size, these birds show a larger extent of white on the throat, without very pronounced malar stripes and

blending more gradually into the rufous of the breast. Females from the same regions are distinguished principally by the usual lack of pronounced malar stripes. It seems probable that this series can be separated under the name *mathewsii* (Laubmann, 1927—new name for *Alcedo viridis* Vieillot, nec Meuschen, 1787). Specimens from southern Bolivia may be intermediate between *mathewsii* and *americano*.

The Huánuco males agree well with the series of *americana* in the extent of the white throat patch and comparatively well-marked malar stripes, but are unusually large (wing 83, 85 mm.). They can not be referred to *mathewsii* and I conclude that they are *americana* with a tendency toward the size of *cabanisii* of the Pacific coast region of Perú.

Three males from Huacho, Dept. Lima, Perú, are typical *cabanisii* and are large (wing 84, 85, 85) with the white throat patch even larger than in *mathewsii* but rather sharply defined against the rufous of the breast as in *americana*. The females from this region are even larger on average (wing 84, 85, 87, 87) but are not clearly separable from the large examples of *mathewsii* except by distribution.

A single male from Cartagena, Colombia, might be referable to *mathewsii* if it were not cut off from the range of that form by the interposition of *americana*, but it agrees even better with specimens of *isthmica* and probably represents an intermediate between that form and *americana*. A Bogotá female completely lacks the dark malar stripes of *americana* and is also referable to *isthmica*. I am unable to recognize Laubmann's *hellmayri*, the characters of which can be found in specimens of both *americana* and *mathewsii*. The comparative absence of dark green spots on the under tail-coverts seems to be due, in part, to immaturity; at least those specimens of the South American subspecies which have a minimum of dark spots are all young birds. In *croteta* the same character is fixed regardless of age.

Specimens examined:

C. a. americana—British Guiana 1♂ 1♀. Surinam: Paramaribo 1♀. Venezuela: Lake Valencia 1♂; Maracay 1♀; Río Mucujón 1♀. Brazil: Serra da Lua 1♂ 1♀; Quixada, Ceará 1♀; Conçeição 1♀; Rosario, Maranhão 2♂; Mangunça Is. 1♀; Tranqueira 1♀; Ibiapaba, Piauhy 1♂; Descalvados 1♂ 1♀. Perú: Lagunas 1♂ 1♀; Moyobamba 1♂; Huánuco 2♂ 3♀. Bolivia: Buenavista, Santa Cruz 1♂.

C. a. mathewsii—Uruguay: Río Uruguay, near Dolores 1♂; Arazati, San José 1♂ 1♀; Polanco, Minas 1♂ 2♀; Montevideo 1♀[1]; San Vicente, Rocha 1♀[1]. Argentina: Isla Ella, Delta del Paraná 2 ♂; Río Paranay 1♂; Concepción, Tucumán 5 ♂ 5 ♀; Vermejo, Chaco 1♂[1]; Las Palmas, Chaco 1 ♀[1]; Conchitas, Buenos Aires 1 ♀[1]. Bolivia: Yacuiba 2♂ 1♀[2]; Río Surutú, Prov. de Lara 1♂ 2♀[2]; Río Yapacani, Santa Cruz 1♂[2]; Puerto Suarez 1♂[2].

C. a. cabanisii—Perú: Santa Eulalia 1♀; Lima 1♀[3]; Huacho, Lima 3♂[3]; Bequeta, Lima 2♀[3].

C. a. isthmica—Colombia: Cartagena 1 ♂: Bogotá 1 ♀. Panamá, Guatemala, Nicaragua, Costa Rica, and Honduras 7♂ 8♀.

C. a. subsp.?—Ecuador: Puente de Chimbo 1♀.

Chloroceryle americana cabanisii (Tschudi).

A(lcedo) Cabanisii TSCHUDI, Faun. Per., Aves, p. 253, 1846—Perú; Mus. Neuchâtel.

A female from Santa Eulalia, April 23, 1922.

Compared with three males from Huacho, two females from Huacho, and a female from Lima (all in Amer. Mus. Nat. Hist.); also with the other material listed under *americana*.

The males of this form are separable from those of *americana* and *mathewsii* by having the white throat patch more extensive posteriorly; more sharply defined against the chestnut band across the breast than in *mathewsii*. The size is larger than most examples of the other two forms (wing 85, 85, 84 mm.) but is matched by specimens of *americana* from the interior of Perú (Huánuco) which are not referable to *cabanisii* on account of the differently marked throat. The females are not clearly separable from large examples of *mathewsii* or *americana*. The second outer rectrix has the inner web more extensively white in all the females of this series than in most of the females of *americana* but some of *mathewsii* from Uruguay are even more strongly marked than the series of *cabanisii*. I have been unable to discover any constancy in regard to the spotting of the under tail-coverts or the extent of white on the wings, and conclude that the separation of the present form must be on the basis of the characters of the males.

[1]Specimens in United States National Museum, Washington.
[2]Specimens in Carnegie Museum, Pittsburgh.
[3]Specimens in American Museum of Natural History, New York.

Galbula tombacea cyanescens Deville.

Galbula cyanescens DEVILLE, Mag. Zool., (2), 1, p. 56, 1849—"le bords de l'Amazone" = Sarayacu, Ucayali R., Perú; Paris Mus.

One male from Huachipa, September 19, 1922; three males from Vista Alegre, August 31; one male from Río Colorado, Chanchamayo Valley, February 1, 1923; and one male from Puerto Bermúdez, March 8.

Compared with three males from Moyobamba and a male and female from Rioja; also with a specimen of typical *tombacea* from Bogotá.

One of the Huachipa examples has broad dusky tips on the metallic feathers of the crown. The Vista Alegre and Río Colorado birds are similarly marked to a lesser degree, and most of the other examples show one or more feathers on the top of the head with fine dusky tips, but there is no complete brownish area as in the specimen of *tombacea*. There is an unusual amount of coppery reflection on the birds from Vista Alegre and Río Colorado while the Moyobamba and Rioja birds average greener, but as this color is variable in the rest of the series and is subject to some post-mortem change, it probably is of no diagnostic value.

One bird at Vista Alegre was seen entering a burrow in the cut bank along a hillside trail where it apparently had a nest under construction.

Galbula albirostris chalcocephala Deville.

Galbula chalcocephala DEVILLE, Rev. Zool., (2), 1, p. 55, 1849—Sarayacu, Ucayali R., Perú; Paris Mus.

Two males from Puerto Bermúdez, March 10 and 19, 1923.

Compared with three males and one female of *G. a. albirostris* from British Guiana.

The Peruvian birds are easily separable by the more extensively black maxilla, the more extensive and deeper purple cap, the deeper rufous under parts and tail, and the less extensive greenish edges on the outer rectrices. One of my specimens has the sides of the chin spot broadly black within the mandibular rami; in the other there are only faint traces of blackish tips on the sides of the chin although the malar apex is as blackish as in *albirostris*.

Ecchaunornis striolatus (Pelzeln).

Bucco striolatus PELZELN, Sitzb. Akad. Wien, 20, p. 509, 1856—Engenho do Cap Gama (Matto Grosso, Brazil); Vienna Mus.

One male from Chinchao, November 8, 1922.

Compared with a specimen from Chanchamayo, Perú.

The Chanchamayo bird is much darker ochraceous on the throat and chest, with a pinkish suffusion on the lower breast and sides, while the dusky bars on the tail are confluent, leaving the russet markings isolated as marginal indentations instead of complete bars. The Chinchao bird is pale cream buff on the throat and breast and has the bars of the tail complete. It has a shorter bill but longer wing and tail than the Chanchamayo specimen.

On comparing this species with *Ecchaunornus radiatus fulvidus*, *E. chacuru chacuru* and *Nystalus maculatus*, it appears that *striolatus* belongs rather to *Ecchaunornis* than to *Nystalus*. It agrees well with the characters given by Ridgway for *Ecchaunornis* but is excluded from *Nystalus* because of its bill which is less than two-fifths as long as the wing and in width at nostrils is more than one-third the length of the exposed culmen. In actual appearance the bill is shorter, stouter, and more abruptly hooked than in *Nystalus maculatus* and its races.

The Chinchao specimen when shot was in solitary occupation of a lofty perch in the top of a tall, dead tree standing in an open clearing.

Malacoptila fusca (Gmelin).

(*Bucco*) *fuscus* GMELIN, Syst. Nat., 1, (1), p. 408, 1788—based on the White-breasted Barbet of LATHAM; Cayenne; type lost.

An adult male from Vista Alegre, August 28, 1922.

Compared with a male from Pozuzo, Perú.

The two birds examined agree in most details except that the specimen from Pozuzo has the lores extensively white and the bases of the chin feathers and the inner basal margins of the remiges more buffy. The Vista Alegre bird when freshly killed had the bill black at the tip and bright orange at the base; iris vermilion; eyelids olive green; feet yellowish green.

The species was found in the tropical zone forest.

Malacoptila fulvogularis fulvogularis Sclater.

Malacoptila fulvogularis SCLATER, P. Z. S. London, 21, p. 123, 1853—Bolivia; British Mus.

?*Malacoptila fulvigularis melanopogon* BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, (2), p. 37—Garita del Sol, Perú; Frankfort Mus.

One female from Huachipa, September 18, 1922.

Compared with two males of "*melanopogon*" from Bolivia, four females and one male from Santo Domingo, s. e. Perú, one female from San Miguel, Urubamba Valley, a male and a female from San Ignacio, n. Perú, and a specimen without sex from Cutucuo, Ecuador (all in Amer. Mus. Nat. Hist.).

No satisfactory arrangement appears possible without referring all the specimens to *fulvogularis*. The Santo Domingo birds are not clearly distinguishable from Bolivian skins; the San Miguel bird has the pectoral stripes clearer white, less tinged with buff than any of the others; the Huachipa bird is the darkest of the series; the San Ignacio specimens have the throat and chest brighter and clearer and the pectoral stripes broader and more narrowly margined with dusky, and have the upper wing-coverts more broadly striped with buff; the Ecuadorian skin is most like one of the Santo Domingo birds. The markings on the mantle vary from sharp, whitish streaks to buffy spots which terminate narrow, dull hair lines, but without geographic significance. Similarly the forehead and lores vary among clear white, dull brownish, and light yellowish buff, with all types present in the series from Santo Domingo. It is thus impossible to recognize *melanopogon*, and the likelihood of the distinctness of Sclater's *substriata* (from "Nova Grenada") is lessened by the evident variability of the species as shown in the present series.

Nonnula ruficapilla ruficapilla (Tschudi).

L(ypornix) ruficapilla TSCHUDI, Arch. Naturg., **10**, (1), p. 300, 1844—Perú; Mus. Neuchâtel.

An adult male and a female in first annual plumage from Vista Alegre, August 22 and October 14, 1922.

No material for comparison.

The adult male is somewhat different from the figure of a specimen from the Ucayali given in Sclater's Monograph of the Jacamars and Puff Birds (pl. 46, fig. 1). In the figure the gray superciliary line is broad and distinct over the entire orbit, the eyelids are not brightly colored, and the crissum is white. In my specimen the superciliary line is all but obsolete on the upper anterior margin of the eye, leaving the gray lores and the gray postocular space connected above the eye by an exceedingly narrow gray line on the very fringe of the eyelid; the skin of the eyelid is slightly expanded and in life was bright orange vermilion; the under tail-coverts are ochraceous buff but not white, agreeing better with Tschudi's poor figure in the Fauna Peruana (Aves, pl. 24, fig. 1) and his description

of "Steiss falb." The bill in life was bright blue at the lower base and otherwise black; feet olive brown.

Tschudi's plate shows no superciliary line whatever but represents the rufous of the crown coming down to the middle of the orbit in front and rear. It is possible that this feature is variable, that the specimen figured by Tschudi was imperfect, or that the differences are racial. More material is necessary before any conclusions are possible.

The immature female is paler below than the adult male, and darker on the crown, with undeveloped bill and other characters of immaturity. It agrees with the adult in the matter of buff crissum and reduced superciliary stripe.

The species was found in low thickets and weed patches along the roadside at the edge of the tropical forest.

Monasa morphoea peruana Sclater.

Monasa peruana SCLATER, P. Z. S. London, 23 (for 1855), p. 194, Jan. 22, 1856—Chamicuros, Perú; British Mus.

A male and female from Huachipa, September 11 and 6 (respectively), 1922; a male and female from Puerto Bermúdez, March 16 and 14, 1923.

Compared with a topotype of *peruana*.

All the examples agree well, with slight variations among themselves in the sootiness of the crown and throat and the extent of white on the face. The Chamicuros bird has a slightly more bluish (less greenish) gloss on the tail, a more orange (less reddish) bill (possibly owing to post-mortem change), and shorter wings and tail than the other specimens. However, judging from measurements of two Yurimaguas birds given in Berlepsch's manuscript notes, the difference in size is purely individual.

This species was found in small flocks in the forest, moving in straggling flight from tree to tree when pursued, or congregating in the branches like migrating blackbirds. Its note is a noisy scream.

Capito auratus punctatus (Lesson).

Bucco punctatus LESSON, Traité d'Orn., p. 165, 1830—no locality; Buena Vista, Colombia, suggested by CHAPMAN, 1928; type?

Capito aurifrons VIGORS, Proc. Comm. Sci. and Corr., Zool. Soc. London, 2, p. 3, 1832—"Chili" = Perú; type lost.

Two males from Vista Alegre. August 26 and 30, 1922; four males and two females from Huachipa, September 14–October 2;

one female from the Río Colorado, Chanchamayo Valley, February 2, 1923.

Compared with a male and female from Moyobamba, a male from Pozuzo, and a male of *auratus* from Pebas, Perú.

There is a slight amount of variation in the series but it is purely individual. There are faint traces of red on the forehead of one or two of the males and the exact tint of orange on the throat and that of yellow on the crown are variable. The females from Huachipa seem to match Chapman's description of a Río Napo female in that the throat spots are crescentic and subterminal rather than guttate and terminal, while the margins of the feathers on the rump are terminal rather than lateral. The Río Colorado female more nearly answers the description of the typical female although it suggests the characters of the variant.

A female from Moyobamba is more heavily spotted on the breast and flanks but more lightly marked on the throat than any of the Huachipa birds. A male from the same locality has the throat lightly tipped with blackish points and the breast has faint blackish terminal bars, more strongly indicated than in any of the other males.

Vigors's *Capito aurifrons*, described from "Chili" (at the same time as *Aglaïa chilensis* which also must have come from Perú), must be a synonym of *punctatus* since the description agrees well with the female of *punctatus* with strongly spotted throat.

The Huachipa birds were found among the mixed species of the vagabond troops in the tropical forest.

Eubucco versicolor steerii (Sclater and Salvin).

Capito steerii SCLATER and SALVIN, P. Z. S. London, 1878, p. 140, pl. 12—Moyobamba, Perú; Mus. Univ. Michigan, Ann Arbor.

One male from Vista Alegre, August 16, 1922; two males and two females from Huachipa, September 11–October 5.

Compared with a male of *versicolor* from Omeja, Bolivia (Amer. Mus. Nat. Hist.), and a male of *glaucogularis* from Chanchamayo, Perú.

While well marked racially, *steerii* appears to be only the northern representative of *glaucogularis* which, in turn, is a subspecies of *versicolor*. Berlepsch and Stolzmann (Ornis, **13**, (2), p. 98, 1906) record typical *versicolor* and so-called hybrids of that form with *glaucogularis* from the same locality, Idma, Perú. These supposed

hybrids were described as having the malar stripe blue mixed with yellow or else with a narrow line of yellow along the upper margin of the blue stripe; otherwise they were like *glaucogularis*. Chapman (Bull. U. S. Nat. Mus., **117**, p. 74, 1921) notes two out of three examples of *versicolor* from Idma as showing a similar approach to *glaucogularis*. I believe that all these intermediate specimens indicate intergradation. On the other hand, the specimen of *glaucogularis* at hand has a faint tinge of bluish on the posterior auriculars, showing a tendency toward *versicolor*.

Of my three males of *steerii*, one from Huachipa shows an approach toward *glaucogularis* from the opposite direction. The breast, normally yellow, has a noticeably bluish tone immediately behind the red throat, and about eight millimeters below this there is a row of fine but distinct orange dots across the breast in the exact position of the orange band in *glaucogularis*. Since the locality is between Moyobamba and Chanchamayo, it is natural that intergrades should be found in this region if the forms are subspecifically related.

I have seen no females of *versicolor* and *glaucogularis*, but from descriptions I judge that they are very similar to my specimens of female *steerii* with, perhaps, a little broader band of red across the chest. Of my two females, one has the blue of the head rather deeper than the other, with blue tinging the breast below the crimson band, and there is a fine speck of red on the lower breast which is wanting in the second bird. The paler-headed example has a small touch of red above the right eye and the yellow behind the ear-coverts is slightly less orange than in the first example.

The species was found in the tropical zone forest.

Ramphastos ambiguus ambiguus Swainson.

Ramphastos ambiguus SWAINSON, Zool. Ill., (1), 3, pl. 168—no loc.; Buena Vista, Colombia, suggested by CHAPMAN, 1917.

A female from Huachipa, September 7, 1922.

Compared with two Bogotá skins.

The Peruvian specimen has the anterior upper parts much less maroon reddish than the Bogotá skins; probably this is a sexual difference. Otherwise the birds agree well with each other in all but size in which there is great variation, the Bogotá birds being at the two opposite ends of the scale.

The "Dios-te-de" was not uncommon at Huachipa in the heavy tropical forest, in spite of which only one specimen was taken. The

song, interpreted by the local residents as "Dios-te-de" sounded more like "kiúk-ke-kiúk," and was accompanied by regular movement of the head. At the first syllable the head was thrown back vigorously to a nearly vertical position and then lowered more slowly to the horizontal where it rested at the close; the tail was carried up at an angle of about forty-five degrees.

Ramphastos monilis cuvieri Wagler.

R(amphastos) Cuvieri WAGLER, Syst. Av. Gen., sign. 1, *Ramphastos*, sp. 5, 1827—"Brasilia versus flumen Amazonum"; Munich Mus.

?Ramphastos Inca GOULD, P. Z. S. London, 14, p. 68, 1846—Chimoré, Bolivia; Liverpool Mus.

A female from Puerto Bermúdez, March 10, 1923; a male from Tingo Maria (collected by E. Heller), October 19, 1922.

Compared with a Bogotá skin of *cuvieri;* also with three males of *monilis* from the Rio Cumarapy and Rio Xingu, Pará, Brazil; and four skins of *aurantiirostris* from British Guiana and Surinam.

The Bogotá skin is old and the bill faded, but there is a pale spot on the side of the maxilla that may once have been reddish. The Tingo Maria skin has the bill very like that of the Bogotá specimen. The Puerto Bermúdez specimen has this pale area still distinctly reddish; when freshly killed it had the spot brighter and more distinct though much smaller than is indicated for "*inca*" in Gould's plate in the Monograph of the Ramphastidae. Chapman (Bull. Amer. Mus. Nat. Hist., **36**, p. 330, 1917) notes indications of red on the bills of three out of five Colombian skins of *cuvieri*. Berlepsch and Hartert (Novit. Zool., **9**, p. 99, 1902) record a skin of "*inca*" from Munduapo, upper Orinoco, and apparently refer Peruvian birds to the same form. In the three skins of *monilis* at hand, one (from the Rio Cumarapy) has the largest part of both maxilla and mandible reddish; another (from the Rio Xingu) has the red areas somewhat reduced but still noticeable for most of the length of the maxilla and visible clearly on the sub-basal half of the mandible; the third (from the Rio Xingu) has the red still more reduced and about as extensive as shown in the plate of *inca*. All this seems to indicate that the type of *inca* was a very brightly marked *cuvieri* or a poorly marked *monilis*, being intermediate between the normal plumages of these two subspecies. It is doubtful if it represents a fixed form with a definite distribution unless there are other characters for it than the exaggerated reddish spot on the side of the bill. The single Bogotá skin at hand has the culmen straighter than in the two

Peruvian birds, but I do not know if this difference is characteristic or otherwise.

Ramphastos vitellinus culminatus Gould.

Ramphastos culminatus GOULD, P. Z. S. London, 1, p. 70, 1833—"Mexico"; Colombia suggested by BRABOURNE and CHUBB, 1912; British Mus.

A female from Puerto Bermúdez, March 11, 1923.

Compared with a male from Yurimaguas, Perú, a male and a female from Buenavista, Santa Cruz, Bolivia, and a female from Río Guachi, Santa Elena, Venezuela; also with three skins of *vitellinus* from British Guiana; one skin of *theresae* from Inhuma, Alto Parnahyba, Maranhão, Brazil; and three males and three females of *ariel* from Tury-assú, Maranhão and Joinville, Santa Catharina, and from the Rio Xingu, Brazil.

These forms, together with *osculans* which I have not seen, form a well-marked specific group distinguishable from the other South American species by the curious concavity on each side of the maxilla below the culmen, which is exactly the same in all the forms mentioned, as is the general shape and coloration of the bill and the style of coloration of the plumage. Certain differences in details of coloration are bridged by individual variation. For example, *vitellinus* and *ariel* have the upper tail-coverts deep red; *theresae* has them light yellow; *culminatus* has them sometimes pale yellow, usually deep orange, and sometimes orange tipped with red. The throat is deep orange in *ariel;* chrome yellow with pale lateral borders in *theresae;* orange centrally in *vitellinus*, with chin, sides of face and a broad malar region nearly white; usually white in *culminatus* though occasionally with the entire lower half of the throat lemon yellow. The red pectoral band varies in width without any sharp delimitation in measurement among the various forms.

According to published accounts, *osculans* is a highly variable form connecting *culminatus* and *ariel.* Berlepsch and Hartert (Novit. Zool., 9, p. 100, 1902) record both *osculans* and *culminatus* from Munduapo, upper Orinoco, but their specimens of *culminatus* were far from uniform and the specimen referred to *osculans* appears to have been only an especially strongly marked individual of the same form as the others. The Orinoco series identified as *culminatus* had the upper tail-coverts varying from yellow to red-tipped orange and the throat from yellow to orange; the so-called *osculans* had the throat orange below and yellow above and the tail-coverts largely red though yellow sub-basally. Many years before, Pelzeln recorded

both *osculans* and *culminatus* from Borba but printed Natterer's notes in which the latter observer stated that he considered the two forms as local varieties of the same bird. The variability of the coloration in *osculans* may prove to be its only claim to separability as a distinct race, a criterion of doubtful value.

The present form, *culminatus*, is strikingly like *R. monilis cuvieri* in the coloration of the plumage and, to a certain extent, in the coloration of the bill, and the two birds occur together over a large extent of territory. However, the resemblance is superficial and the two birds belong to quite distinct specific groups, the other members of which do not show the similarity exhibited by these two.

Selenidera langsdorffii (Wagler).

P(teroglossus) Langsdorffii WAGLER, Syst. Av., sign. 1, *Pteroglossus* sp. 12, 1827—Brazil; Munich Mus.

A male from Vista Alegre, August 30, 1922; a female from the Hacienda Buena Vista, Río Chinchao (collected by E. Heller), September 2.

No other specimens for comparison.

This species was known locally as "Tabaquero."

Aulacorhynchus derbianus derbianus (Gould).

Aulacorhamphus derbianus GOULD, P. Z. S. London, 3, p. 49, 1835—"Cordilleran Andes"; Liverpool Mus.?

Two males from Huachipa, September 3 and October 4, 1922.

Compared with a female from Chanchamayo.

This species appears to have no very close relatives among its congeners. It was known locally as "Lechero."

Colaptes rupicola cinereicapillus Reichenbach.

Colaptes cinereicapillus REICHENBACH, Hand. Spec. Orn., lief. 6, p. 416, pl. 680, figs. 4489–90, 1854—"Guayabamba," n. Perú; Dresden Mus.

Colaptes stolzmanni TACZANOWSKI, P. Z. S. London, 1880, p. 209—Cutervo, n. Perú; formerly Warsaw Mus., now lost.

Two males and one female from the mountains near Huánuco, 12,200 feet, June 20–26, 1922; two males and one female from Huánuco Viejo, 12,700 feet, December 19.

Compared with a small series from Cajamarca, Hacienda Llagueda, and near Balsas, n. Perú; also with three specimens of *puna* from Junín.

The Huánuco birds agree fairly well with the north-Peruvian specimens. The two males from Huánuco Viejo are much paler below than any of the others but they are also much worn. The female from the same locality is like the Huánuco female. The north-Peruvian skins may average a little darker below and the Huánuco and Huánuco Viejo examples a little yellower, but the Cajamarca bird (which is slightly immature) is like the Huánuco specimens.

Both males from Huánuco have distinct traces of red on the nape and the female from that locality has the pectoral bars short, not reaching the lateral margins of the feathers. These characters show close approach toward *puna*. Ménégaux (Bull. Soc. Philom. Paris, (10), 1, pp. 207–209, 1909) has shown that *puna* intergrades with *rupicola*.

This flicker is a common bird in the lightly wooded and open portions of the Andean table-land. I found it to be very wary and alert and therefore difficult to stalk. Its favorite perch was on some of the huge boulders which lay on all sides and it usually managed to keep most of the rock between itself and its pursuer, jerking its body erect to peer over the upper edge and ready to take flight when it deemed the danger too imminent. It was seen frequently winging its undulating flight over the open hilltops, displaying the prominent white rump as a conspicuous field mark. Its voice and actions were strongly suggestive of the North American flickers of which it is the southern representative.

Hypoxanthus rivolii brevirostris Taczanowski.

Hypoxanthus brevirostris TACZANOWSKI, P. Z. S. London, 1874, p. 546—Higos (♂) and Chilpes (♀), Perú; formerly Warsaw Mus., now lost.

Hypoxanthus aequatorialis DUBOIS, Bull. Acad. Roy. Belg., 1879, p. 823—Ecuador; Brussels Mus.

Three males and one female from Panao, July 6-16, 1922; a female from Chinchao, November 20.

Compared with two females from Ecuador (one from Hoyaucshi); also with a female of *quindiuna* from "Colombia"; and six skins of *rivolii* from Páramo de Tamá, Colombia and Venezuela.

Judging by descriptions, the Expedition specimens appear to be typical *brevirostris*, although I have no topotypes for comparison. The Chinchao female is not quite adult and shows traces of red tips on some of the feathers of the crown though the malar stripes are entirely black. Possibly this is a tendency toward the characters of *meridae*.

This handsome woodpecker was found in the temperate zone woodland and was quite retiring in its habits. Occasionally one was heard to utter a rolling "chir-r-r-r-r" or a short "ka-weép, ka-weép," but for the most part they were quiet, industrious birds, not often seen or heard.

Chrysoptilus atricollis peruvianus Reichenbach.

Chrysoptilus peruvianus REICHENBACH, Handb. Spec. Orn., Lief. 6, p. 419, No. 985, pl. 680, figs. 4493–94, 1854—Perú = Cutervo (see below); Dresden Mus.

Ch(rysoptilus) chrysonotus BERLEPSCH and STOLZMANN, P. Z. S. London, 1892, p. 386—Callacate, Chachapoyas, Perú; Frankfort Mus.

Chrysoptilus atricollis lymani BANGS and NOBLE, Proc. N. Engl. Zool. Club, 6, pp. 85–86, 1918—Huancabamba, Perú; Mus. Comp. Zool.

A female from Cullcui, Marañón River, December 12, 1922.

Compared with three males and one female of *"lymani"* from Huancabamba (Mus. Comp. Zool.); also with two males of *atricollis* from Menucucho and Hacienda Llagueda, Perú.

The Cullcui and Huancabamba birds differ from the specimens of *atricollis* by having the blackish bars of the dorsal surface broad, equal in width to the interspaces, and the center of the belly quite immaculate, Light Chalcedony Yellow, unbarred. The general tone of coloration is difficult to compare since the yellow pigment appears to fade considerably and becomes nearly white before the feathers are finally shed, and all of the specimens in hand have the plumage mixed with fresh and faded feathers.

Reichenbach's illustration when compared with Malherbe's plate of *atricollis* (Mon. Pic., 4, pl. 88, fig. 4, 1862) shows the broad dorsal barring characteristic of the inland form, and the type in the Dresden Museum (No. 18118) examined by Hellmayr (MS.) confirms the identity of this race with *chrysonotus* and *lymani*. The type locality of *peruvianus*, therefore, may be proposed herewith as Cutervo, which is one of the collecting stations of Warscewicz, the discoverer of the type.

This woodpecker was not uncommon at Cullcui but it was very difficult to get. It was found about the tall cactus stalks in which it appeared to nest, since many holes were seen into which the birds frequently disappeared. A number of other specimens were shot but they were caught by the cactus spines and held in inaccessible security high above ground.

Veniliornis fumigata fumigata (D'Orbigny).

Picus fumigatus D'ORBIGNY, Voy. Amér. Mérid., Ois., pl. 65, fig. 1, 1844; idem, op. cit., p. 380, 1847—type from Yungas, Bolivia; Paris Mus.

Veniliornis oleagineus aureus CHAPMAN, Bull. Amer. Mus. Nat. Hist., **33**, p. 612, 1914—La Sierra, Colombia; Amer. Mus. Nat. Hist.

Veniliornis oleagineus obscuratus CHAPMAN, Amer. Mus. Novit., **250**, p. 1, 1927—Chugur, 40 miles w. of Cajamarca, Perú; Amer. Mus. Nat. Hist.

One male from Huachipa, September 26, 1922; a male and female from Chinchao, November 17 and October 31.

Compared with a skin from near Yala, Jujuy, Argentina; a male and female from Hacienda Limón, Perú; and a female from Páramo de Tamá, Venezuela.

This species appears to be extremely variable in color if not dimorphic, showing both dark brown and golden phases of plumage without relation to distribution. The Argentine example is quite dark throughout, being dark Buffy Brown or Olive Brown on the mantle and under parts, and rather lighter, nearer Saccardo's Umber, on the middle back. The Huachipa specimen is nearly as dark, with faintly reddish tips on the back. The male from Chinchao, southwest of Huachipa, is bright Isabella Color x Honey Yellow on the back and light Saccardo's Umber on the breast. The female from Chinchao is in mixed plumage of faded pale brown and dark brown.

The Hacienda Limón birds are from a locality close to the type locality of *obscurata* but they are much paler and more golden than the Jujuy and Huachipa specimens, though darker and duller than the Chinchao examples, whereas *obscurata* is described as being darker and less golden than *fumigata*. A female from Páramo de Tamá, Venezuela, is even brighter golden than the Chinchao specimen. Chapman already (1927) has announced the invalidity of *aurea* and it seems impossible, in the light of the present material, to maintain *obscurata*. The species apparently varies throughout its extensive range and if divisible it must be on other characters than general coloration.

Size also seems to be variable. Hacienda Limón specimens are largest in the present series, Huachipa and Chinchao skins are smallest, and the Jujuy and Páramo de Tamá examples are intermediate. That these comparisons are not significant is evidenced by the measurements of specimens from other localities given by Chapman (1914) in which similar irregular variation is shown.

The use of the name *fumigata* for the "*oleaginea*" group is necessitated by the fact that *oleagineus* Lichtenstein, 1830, is a

nomen nudum and *oleagineus* Reichenbach, 1854, is antedated by *fumigatus* D'Orbigny, 1847.

Veniliornis nigriceps pectoralis (Berlepsch and Stolzmann).

Dendrobates malherbei pectoralis BERLEPSCH and STOLZMANN, P. Z. S. London, 1902, p. 33—Pariayacu, Maraynioc, Perú; ♀; Frankfort Mus.

A male and female from above Panao, July 17 and 3, 1922.

Compared with a male and three females of *nigriceps* from Incachaca, Bolivia (Carnegie Mus.).

The Peruvian specimens show certain of the characteristics of *pectoralis* as described by Berlepsch and Stolzmann, but other differences mentioned are not constant. The female has the top of the head distinctly olivaceous, not clear black as in *nigriceps;* the postocular stripe is paler yellow and broken into bars posteriorly; the back is more olivaceous (Bright Orange Citrine) and less tinged with red; the dark portions of the under parts are more olive (Buffy Olive) and less brownish; the pale bars on the breast are elongate-cordate, not parallel-edged (although one of the Bolivian females is no different) while the pale bars are narrower than the olive interspaces in both forms; and the under side of the tail is more olivaceous, less brownish, with the cross bars less sharply contrasted.

So far as I can learn, the adult male of this race has never been described. It may be distinguished from the male of *nigriceps* by the characters given above for the female with the exception that the whole top of the head, except a narrow, smoky gray frontal band, is Nopal Red x Brazil Red with the subterminal areas of the feathers Dark Neutral Gray, less blackish than in *nigriceps;* the lores also are paler than in the typical race.

My specimens were taken at an elevation of 10,300 feet and the Bolivian examples of *nigriceps* were collected at 2,500 and 2,600 meters. Both are temperate zone inhabitants like *equifasciatus* of Colombia and Ecuador, which differs from both *nigriceps* and *pectoralis* by having the pectoral bars and interspaces of equal width. I would place all three as races of the same species.

The Panao birds were taken in the same isolated patch of woods and may have been a mated pair although they were secured on different dates.

Veniliornis affinis haematostigma (Cabanis).

Picus haematostigma CABANIS in TSCHUDI, Faun. Per., Aves, p. 266, 1846—ex NATTERER MS.; no locality; evidently based on specimens in Natterer's collection; Vienna Mus.

C(ampias) hilaris CABANIS and HEINE, Mus. Hein., 4, pt. 2, p. 154, 1863—Perú; Halberstadt Mus.

V(eniliornis) ruficeps haematostygma HELLMAYR, Abh. K. Bay. Akad. Wiss., Kl. 2, 22, pt. 3, p. 611, 1906 —crit.; type locality designated Engenho do Gama, Rio Guaporé, from named specimen in Natterer's collection; Vienna Mus.

A female from Huachipa, September 19, 1922; a male from Río Colorado, Chanchamayo Valley, February 6, 1923; a male and female from Puerto Bermúdez, March 14 and 18.

Compared with a female from Chanchamayo and a female from Porto Velho, Rio Madeira (nearly topotypical); also with a small series of *ruficeps* from Tury-assú, Rosario, and Barra do Corda, Maranhão, Brazil; a "Bogotá" skin is referable to *orenocensis*.

The Porto Velho specimen though nearly topotypical is not thoroughly characteristic of the race, judging by all accounts, since the streaks on the upper wing-coverts are rather pronounced, but it is a little paler below than females of *ruficeps* from Tury-assú and Rosario, has practically no red on the mantle, and has a more nearly unstreaked rump. The series from Perú bears out these characters but further shows a considerable reduction in the size of the shaft streaks on the upper wing-coverts. The under parts vary from the relatively dark color of the Porto Velho specimen to a noticeably paler hue and the upper wing-coverts are broadly tipped with red as in *ruficeps*. The males of *ruficeps* (from Tury-assú and Barra do Corda) are distinctly sootier on the ventral cross bars than any of the series of *haematostigma*.

Cabanis united with *passerinus* the specimens labeled *haematostigma* by Natterer, but he published the Nattererian name with a description, thereby validating it. Later (1863) he united this *haematostigma* with *ruficeps* and separated Peruvian specimens as *hilaris*. Without a large series of skins from the Rio Madeira and Perú it is difficult to say which arrangement is best—to unite *haematostigma* and *ruficeps*, unite *haematostigma* and *hilaris*, or recognize all three races. The closer resemblance of the Porto Velho bird to my Peruvian skins than to the series of *ruficeps* makes it appear most desirable at present to sink *hilaris* in the synonymy of *haematostigma* and refer the Peruvian specimens to the Rio Madeira form. Hellmayr (1906) fixed the type locality as Engenho do Gama because of a male specimen in the Vienna Museum from that locality labeled by Natterer, himself, *haematostigma;* Natterer's Borba and Marabitanas specimens were found to be referable to *ruficeps*.

The use of the specific name *affinis* is necessitated by Hellmayr's examination of the type of that species (cf. Hellmayr, Field Mus. Nat. Hist. Publ., Zool. Ser., **12**, p. 412, footn., 1929).

Picumnus jelskii Taczanowski.

Picumnus jelskii TACZANOWSKI, P. Z. S. London, 1882, p. 41, pl. 2, fig. 3—Paltaypampa, Perú; Warsaw Mus.

Picumnus irenae DOMANIEWSKI, Ann. Zool. Mus. Pol. Hist. Nat., **4**, No. 4, p. 292, 1925—Garita del Sol, Perú; imm. specimen; Warsaw Mus.

Picus jelskii vitocensis DOMANIEWSKI, t. c., p. 293—Garita del Sol, Perú; adults; Warsaw Mus.

A male from Vista Alegre, October 11, 1922, and a male and young female from Chinchao, November 8 and 10.

Compared with two males and two females from San Miguel Bridge, Urubamba Valley, Perú (three in U. S. Nat. Mus.; one in Amer. Mus. Nat. Hist.).

The Expedition series agrees fairly well with Taczanowski's description, but not so well with his plate which fails to show the pale edges on the interscapulars and upper wing-coverts mentioned in the text and present on my birds. The back is paler in the specimens than in the figure, though the description is accurate.

Domaniewski has attempted to separate Kalinowski's adult specimens collected at Garita del Sol from the type of *jelskii* taken at Paltaypampa, both localities being in the temperate zone in the Aynamayo Valley with only two hundred feet difference in elevation. The characters which he gives for *vitocensis* are purely individual and can be found in the two adults from Chinchao, one of which agrees with *jelskii* (as described) and the other with *vitocensis*. Domaniewski further described the young bird as a distinct species, *P. irenae*, also from Garita del Sol, although the specimen which forms the type had been correctly determined as a young male of *jelskii* by Berlepsch and Stolzmann and so recorded by them in 1902. My immature female from Chinchao answers to the description of *irenae* quite well.

This species is subtropical in distribution.

Picumnus punctifrons punctifrons Taczanowski.

Picumnus punctifrons TACZANOWSKI, Orn. Pér., **3**, p. 65, and Tables, p. 87, 1886—part, Monterico (cf. DOMANIEWSKI, Ann. Zool. Mus. Pol. Hist. Nat., **4**, No. 4, p. 296, 1925); Warsaw Mus.

Two males, one adult female, and one young female from Huachipa, September 19-29, 1922.

Compared with seven skins of *P. lafresnayei* from Moyobamba, Perú, and additional specimens of the same species from Zamora and Oyacachi, Ecuador.

The Huachipa specimens agree fairly well with Taczanowski's original description. This states that the dorsal (interscapular) feathers have olive yellow borders forming an undulation more or less pronounced; the diagnosis in the "Tables" is more positive and says that the light borders are little marked. In the present series the yellowish edges are present but are not at all pronounced. Taczanowski drew up his description from both Monterico and Huambo specimens, noting that the Huambo examples were in fresher plumage than the others and commenting on certain differences in the birds from the two localities; he ascribes the distinguishing features of the two series to this difference in freshness. Possibly the original description applies more closely to the Huambo birds, though this is difficult to determine.

However, Domaniewski (l. c.) selected as the type of *punctifrons* one of Taczanowski's specimens from Monterico and described the Huambo birds as new under the name *taczanowskii*, having a freshly plumaged bird from La Merced to compare with the fresh Huambo specimens. He added nothing to Taczanowski's comment on the characteristics of the Huambo birds and thus supplied no information as to possibly less distinct barring of the upper surface in the typical form. Hargitt (Cat. Birds Brit. Mus., 18, p. 544, 1890) describes as *punctifrons* (=*taczanowskii*) a Huambo specimen in which the upper parts were "olive barred with dull yellowish olive." In my Huachipa series, the upper parts are not unqualifiedly barred and I suspect that the typical Chanchamayo Valley form is likewise not barred but rather lightly margined on the upper back. The rump, as described by Taczanowski, is noticeably barred, apparently in both forms.

In any case, *taczanowskii* is said to be much brighter than *punctifrons* above, below, and on the outer margins of the secondaries, with the ventral barring less regular. In these respects, *P. lafresnayei* differs also from *punctifrons* exactly as indicated and would seem to be separable from *taczanowskii* only by the red instead of yellow tips on the forehead and by browner, less blackish, crown and occiput. On this account it is probable that *punctifrons* may be related to *lafresnayei* through *taczanowskii*. The general pattern is the same—olive above with yellowish edges, forehead with fine orange red or yellow spots, crown and occiput with small round

white spots, and under parts banded from chin to under tail-coverts. Moyobamba appears to be the most southern locality for *lafresnayei* and it is not far from Huambo but is separated from it by a range of mountains which has proven to be a subspecific distributional barrier in another instance (cf. Zimmer, Proc. Biol. Soc. Wash., **42**, p. 93, 1929). Without specimens of *taczanowskii* for examination I am unable to do more than suggest the possibility of the relationship expressed above.

The Huachipa birds were found in the tropical forest associated with the vagabond flocks as well as in the weed patches at the edges of the clearings.

Liosceles thoracicus thoracicus (Sclater).

Pteroptochos thoracicus SCLATER, P. Z. S. London, 1864, p. 609, pl. 38—Rio Madeira, Brazil; British Mus.

A male from Puerto Bermúdez, March 18, 1923.

No material for comparison.

The specimen agrees well with Sclater's original description. Sclater's later description (Cat. B. Brit. Mus., **15**, p. 344, 1890) speaks of the pectoral spot as being "orange-red" whereas in my specimen it is no brighter than Amber Brown overlying Baryta Yellow. It is possible that there is a racial distinction which is impossible to determine with a single specimen.

Scytalopus unicolor Salvin.

Scytalopus unicolor SALVIN, Novit. Zool., **2**, p. 15, 1895—Cajabamba, Huamachuco, Perú.

A male from the mountains near Panao, July 16, 1922.

Compared with a young male and five females of *S. acutirostris* from near Huánuco, a male from Chipa, Junín, and a female from Machu Picchu; a male and three females of *unicolor* from Palambla, Perú; and a male and female of *S. griseicollis* from El Pinon, a female from Tocainito, and two females from Chipaque, Colombia (all but the Huánuco specimens in Amer. Mus. Nat. Hist.).

The Panao bird seems to belong to the northern *unicolor* by reason of its longer legs, longer and slenderer bill (less elevated at base), longer wing, less barred flanks, tertials, tail, and rump, and gray instead of brown outer margins of the rectrices as compared with the series of *acutirostris*. However, there is a trace of barring on the tail, especially on the outer feathers, the outer margins of the

rectrices are dull brown, and there is a suggestion of barring on the tertials, all of which shows an approach toward *acutirostris*.

One female from the mountains near Huánuco is somewhat intermediate and is very difficult to place satisfactorily. It has large feet, slender bill (so far as can be determined, since this member is damaged), dark and relatively unbarred rump, upper tail-coverts, and flanks as in *unicolor*, and the tertials and tail are barred only at the tip though the outer surface of the remiges is definitely brown and not gray; the dorsal coloration is very little browner than in a female of *unicolor* from Palambla. On the other hand, a male of *acutirostris* from Chipa has the outer edges of the remiges gray with only a faint trace of brown, though the heavily barred flanks, tertials, and rump and the small bill and feet are typical of *acutirostris;* the female from Machu Picchu also has the remiges edged with gray, which throws some doubt on the value of this character.

So little is known of the seasonal, sexual, and ontogenetic differences in the plumages of these birds that a proper solution of their affinities is impossible at this time. It appears certain that the male from near Panao is not typical *unicolor* and the anomalous female from above Huánuco is not typical *acutirostris*, each varying in the direction of the other, so that it is very possible that *unicolor* and *acutirostris* may one day be shown to be specifically related. Huánuco and Panao are only a few miles apart across the ridge inhabited by these birds. The specimens were all taken in the same type of habitat which is not likely (probably unable) to support two distinct but related subspecies, one in each place. I anticipate the finding of intergrades when more material is collected in the region.

Scytalopus acutirostris (Tschudi).

Pt(eroptochos) acutirostris TSCHUDI, Arch. Naturg., **10**, (1), p. 282, 1844—Perú; Mus. Neuchâtel.

Three adult females, two immature females, and one immature male from the mountains near Huánuco, 12,200 feet, June 9–23, 1922.

Compared with the material noted under *S. unicolor*.

All but one adult female agree in general characteristics with the male from Chipa (which is probably nearly topotypical) and with Tschudi's description. One female shows a distinct approach toward *unicolor* with which it is discussed above.

The females in the series show a great deal of variation which may be worth recording. One bird has the mantle and tertials with black

concentric bars, the tail without black bands, the throat and breast pale gray with a buffy wash, the belly buff with dusky centers, the flanks with broad blackish concentric loops, the top of the head grayish brown with indistinct dusky points, the under wing-coverts buff, the outer edges of the remiges and upper wing-coverts pale brown, the primaries and greater wing-coverts with buff tips and black subterminal bars, and the alulet barred; it is evidently immature.

Another is similar but the top of the head is grayer, the mantle is less heavily barred, the belly is less extensively buff, the bars of the flanks are straighter, the under wing-coverts and lesser upper wing-coverts are grayer, the greater coverts are about as in the first specimen, the primary-coverts are grayish brown with blackish tips, and the outer margins of the remiges are darker brown; this bird also is immature.

A third female is grayer above than the second but marked about the same except that the bars on the tail are inclined to form concentric loops; below, the gray of the chest is clearer, the belly is only touched with buff, the flanks are brighter cinnamomeous, the lesser upper wing-coverts are still grayer, the primary-coverts are mostly blackish with brown outer margins, the alulet is gray, and the outer margins of the remiges are still darker gray; this specimen is rather adult than immature.

The fourth example is, above, about like the third but the central rectrices have definite concentric loops of black like the tertials; the under parts are entirely gray except the lower flanks and crissum which are deeper cinnamon; the top of the head is slightly brownish with fine dusky spots; the bird appears to be nearly adult.

The fifth example is clearer brown above without spots, the rump is unbarred and the upper tail-coverts are nearly so, the throat and breast are clear gray but the belly is deep buff centrally and the flanks are buffy brown with indistinct concentric loops of dusky; the tertials and tail are lightly barred only at the tips, the upper wing-coverts are totally unbarred except that the greater series have a faint buffy spot at their tips.

This entire series may be more or less immature since the adult male and female from Chipa and Machu Picchu have the back gray, unspotted, and the outer edge of the wing gray with only a touch of brown. It is also possible that the Panao male, which I have referred to *unicolor*, may be an extreme example of that form or may be a really adult specimen of the birds here referred to *acutirostris*. A

much larger series from various localities will be necessary to settle the question.

The present birds were found in the region of cloud forests in the temperate zone. Some were in thickets of stunted trees growing over tumbled piles of boulders where there were many little caverns among the rocks, overgrown with vines and covered with dripping moss. Others were along the banks of small streams which meandered across the near-by plain. In actions they were like the Winter Wren (*Nannus hiemalis*), being quick and secretive. Often it was necessary to burrow into precarious masses of roots and rotten logs to recover the specimens which had fallen into crevices, and not all of the birds that were shot were retrieved. The only note heard was a rather slowly repeated, "tyoók, tyoók, tyoók"

Scytalopus femoralis femoralis (Tschudi).

Pt(eroptochos) femoralis TSCHUDI, Arch. Naturg., **10**, (1), p. 281, 1844—Perú =Vitoc Valley, HELLMAYR, 1924; Mus. Neuchâtel.

An adult male from Huachipa, September 20, 1922.

Compared with a male from Andalucia, Colombia.

This specimen has a few silvery white feathers in the fore part of the crown, one such feather below the right auriculars, and one in the left malar region. The rufous on the posterior under parts is a little darker and duller than in the male from Andalucia, Colombia, and the size is a trifle smaller, but otherwise there is not much difference between the two birds.

The specimen was taken in the heavy tropical forest as the bird was running along a fallen log.

Conopophaga peruviana Des Murs.

Conopophaga peruviana DES MURS in CASTELNAU, Expéd. Amér. Sud, Ois., livr. 18, p. 50, pl. 16, fig. 1, June, 1856—Pebas and Nauta, n. e. Perú; Paris Mus.

A female from Puerto Bermúdez, March 13, 1923.

No material for comparison.

Conopophaga castaneiceps brunneinucha Berlepsch and Stolzmann.

Conopophaga castaneiceps brunneinucha BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 385—Garita del Sol, Perú; Warsaw Mus.

Three males and one female from Huachipa, September 19–23, 1922.

No material for comparison.

Two of the males are duller than the third which is in full, rich plumage.

These birds kept to the seclusion of overgrown thickets in dense forest where their dark plumage blended with the shadows on the ground, only the silvery white occipital tufts coming startlingly into view when displayed. The only note I heard from the species was a sharp "sheep."

Cymbilaimus lineatus intermedius (Hartert and Goodson).

Cymbilanius lineatus intermedius HARTERT and GOODSON, Novit. Zool., 24, No. 3, p. 495, Dec. 1917—Humaytha, Rio Madeira, Brazil; ♀; Tring Mus.

Two females from Huachipa, September 28, 1922.

Compared with a female from Rioja, Perú.

The Huachipa birds are slightly paler above than the Rioja example but, otherwise, agree closely.

Taraba major melanura (Sclater).

Thamnophilus melanurus SCLATER, Edinb. N. Philos. Journ., n. ser., 1, p. 233, April, 1855—part, Río Ucayali, e. Perú; imm. ♂; British Mus.

One male and two females from Vista Alegre, August 16–October 20, 1922; a male from Puerto Bermúdez, March 6, 1923.

Compared with three males and one female of *major* from Argentina and five males and two females from Matto Grosso, Brazil; nineteen males and thirteen females of *stagura* from Maranhão, Goyaz, Piauhy, Ceara, and Bahia, Brazil; six males of *semifasciata* from British and Dutch Guiana and Serra da Lua, Brazil.

The Vista Alegre male is marked by having broad white tips on the outermost rectrices and a white spot at the tips of the next pair. The amount of black on the under tail-coverts is indeterminable since most of these feathers are missing; one such feather which remains is pure black; two new feathers still in the sheath are white. The crest of *melanura*, judging by the present series, is shorter than in *transandeana*.

The bird was rather shy, keeping largely to the depths of the thickets in otherwise open country. Its iris was bright red in life.

Thamnophilus doliatus subradiatus Berlepsch.

Thamnophilus subradiatus BERLEPSCH, Journ. Orn., 35, p. 17, 1887—"Oberamazonas" = Iquitos, Perú; Frankfort Mus.

Thamnophilus variegaticeps BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 379—La Merced, Chanchamayo, Perú; Frankfort Mus.

A male and female from the Río Colorado, Chanchamayo Valley, February 13 and January 30, 1923.

Compared with another male from the Chanchamayo Valley and an adult and a young male and two adult females from Moyobamba.

The Chanchamayo birds are darker throughout but are probably not separable from the northern specimens. Berlepsch and Stolzmann described *variegaticeps* from Chanchamayo by virtue of a supposed shorter crest with occasional white margins, broader dorsal white bands giving a paler coloration above, and more complete white bars on the tail, characters in which my specimens do not agree; Berlepsch later (Ornis, 1900, p. 93) referred Santa Ana specimens to the northern *subradiatus*. The race, like others of the group, is variable and can hardly be subdivided.

The Moyobamba specimens show what may be an approach toward *T. d. zarumae*, judging by descriptions, or toward *T. d. albicans*. The adult male has a white belly barred obsoletely on the upper part, the flanks are tinged with buff, the throat is lightly streaked, and the rest of the under parts are less heavily barred than in the Chanchamayo examples. *T. d. zarumae* has been recorded by Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 382, 1926) from Palambla, Perú, west, but very little north, of Moyobamba.

Thamnophilus palliatus puncticeps Sclater.

Thamnophilus puncticeps SCLATER, Cat. Birds Brit. Mus., **15**, p. 212, 1890—part; Tilotilo and Consati, Yungas of La Paz, Bolivia; British Mus.

Four adult males, one immature male, three adult females and one immature female from Huachipa, Vista Alegre and Chinchao, August 16—to November 1, 1922.

Compared with two males and a female of *palliatus* from Maranhão, Brazil.

I use the name *puncticeps* with some diffidence after a careful examination of the merits of the case. Sclater's original description emphasizes characters which are not definitive, giving precedence to the white striations of the black cap and to narrower black and broader white ventral bands, which are found equally in east-Brazilian specimens of true *palliatus*. His "flanks somewhat rufescent" is better and in series seems to hold true on the average although the minimum of rufescence in Peruvian specimens can be matched by the maximum in Brazilian examples. Berlepsch and

Stolzmann (P. Z. S. London, 1896, p. 380) describe a male from Garita del Sol, Perú, as having the rufous of the back much paler than in Bahia males. This same feature is evident in my series when comparisons are made with comparable individuals in the Maranhão series. The young female from Maranhão, thus, is paler than the adults of both sexes from Perú and slightly darker than a young male from Chinchao, though much darker than a young female from the latter locality. Hellmayr (MS.) notes the pale coloration of Sclater's type of *puncticeps* as compared with a male from Mojos, e. Bolivia, and a number of Bahia skins, while a male from Chanchamayo, Perú, is said to be again darker though at the maximum of size. My Peruvian specimens average larger than recorded Bahia examples, Maranhão birds, and even eastern and western Bolivian specimens. It seems evident, then, that Peruvian examples average larger and have an average of paler, less chestnut, upper parts than typical *palliatus*. Bolivian specimens are intermediate; those from eastern Bolivia agree in both characters with *palliatus* and those from the west agree in size with *palliatus*, in color with *puncticeps*. The birds found in the region of the type locality of *puncticeps* are, therefore, less distinct from *palliatus* than are Peruvian examples and may be considered as unworthy of separation, but if the race is extended to include the Peruvian examples with their better marked characters, the name *puncticeps* may stand for the western Bolivian and Peruvian examples together.

A further character noticeable in my Peruvian birds, which may or may not occur in Bolivian examples, is a somewhat longer crest and a farther posterior extension of the black of the hind neck which reaches over the anterior back feathers.

To the northward, *T. tenuepunctatus* is found, with the race *berlepschi* in the departments of Amazonas and Loreto, Perú. Males of this species are barred black and white on the back, not rufous as in the *palliatus* group. A tendency toward this barring is shown by the males of both races of *palliatus* which have a few feathers on the sides of the hind neck barred with black and rusty white, but a male from Huachipa has the barring quite pronounced across the anterior interscapulars. Perhaps a good series from northern Perú would show a closer relationship between *tenuepunctatus* and *palliatus* than is demonstrable at present. A female from Poco Tambo, near Uchco, referable from geographic reasons to *tenuepunctatus berlepschi*, is separable from central Peruvian females only by having the pale rufous inner margins of the wing quills paler, more buffy,

and more sharply defined against the dusky median portions of the feathers.

The species was known locally as "Uitishu," in fancied imitation of the birds' peculiar song, which consists of several hurried notes in a descending scale with a suddenly lowered, explosive note at the end. The birds inhabit thick, scrubby growths near the ground where they clamber about in concealment, being oftener heard than seen. When they approach the outer margins of their retreat, their pale, whitish eyes are their most conspicuous feature.

Thamnophilus aethiops kapouni Seilern.

Thamnophilus aethiops kapouni SEILERN, Verh. Orn. Ges. Bayern, 11, Heft 4, p. 277, 1913—Yahuarmayo, Carabaya, s. e. Perú; Mus. Seilern, Leskna, Czecho-Slovakia.

One male and three females from Huachipa, September 11–30, 1922.

Compared with four males and two females of *incertus* from Pará and Maranhão, Brazil.

The females show great variation in the depth of color on the back and under parts, but the crown is about the same hue of deep Chestnut Brown or Carob Brown in all. The male has a trace of pale apical spotting on several of the median upper wing-coverts, showing an approach toward *T. a. polionotus*.

Thamnophilus schistaceus hellmayri (Cory).

Dysithamnus schistaceus hellmayri CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 338, 1916—Rioja, n. Perú; Field Mus. Nat. Hist.

?Dysithamnus dubius BERLEPSCH and STOLZMANN, Ibis, 1894, p. 393—La Merced, Perú; Warsaw Mus.

Two males from Puerto Bermúdez, March 11 and 13, 1923.

Compared with the type of *hellmayri* and a female from Moyobamba; also with four skins of *schistaceus* from Río Espirito Santo, Bolivia, and two of *capitalis* from Iquitos.

One of the Puerto Bermúdez birds is about like the type above but is slightly paler below; the other is nearly the same as the type below but is blacker above.

Together with the type, these two birds are exactly intermediate between *schistaceus* and *capitalis* (as represented from Iquitos), being larger and darker than *schistaceus* and smaller and paler than *capitalis*.

A question exists with regard to the name *dubius*. Berlepsch and Stolzmann described a male from La Merced, Chanchamayo Valley, under that name. Hellmayr (Novit. Zool., 14, p. 63, 1914) referred a male from Chuchurras, Huánuco, to *dubius* while recognizing an unnamed separable form from Yurimaguas and Chyavetas, which later was named *hellmayri* by Cory. The Puerto Bermúdez examples, coming from between La Merced and Chuchurras, ought to belong to *dubius*, but seem to be inseparable from the type of *hellmayri* and do not show the characters ascribed to *dubius*. If both *dubius* and *hellmayri* are recognizable, their distributions are curious unless the Chuchurras bird can be referred to *hellmayri;* if they are identical, the older name, *dubius*, must be used. A series of Chanchamayo birds will be necessary to determine the correct status of the two forms.

On March 14 I collected a nest and two eggs which I am sure belonged to this species. I did not obtain the female which was sitting, not wishing to risk the destruction of the eggs by shooting at the nest, and I was unable to collect the parent bird when she hurriedly departed. However, I had watched the bird for some time from a distance of but a few feet and was able to see the heavy, hooked beak and rufous cap quite distinctly. The eggs were two in number, cream-colored with dark spots over all. The nest was a rather loosely built and shallow cup hung like a vireo's nest in the fork of a bush not above three feet from the ground. It was constructed of coarse plant fibers without any finer lining and was covered on the outside with green moss and some fungus-whitened twigs. As it was placed, a cluster of leaves hung over the top within an inch of the back of the brooding female. No male was seen in the immediate vicinity and the female, after leaving the nest, did not remain anywhere in sight but disappeared into the jungle. The eggs were destroyed in camp by a stray dog so that only the nest remains in the collection.

Thamnophilus melanchrous Sclater and Salvin.

Thamnophilus melanchrous SCLATER and SALVIN, P. Z. S. London, 1876, pp. 16, 18, pl. 3—Huiro, Urubamba Valley, Perú; British Mus.

Four adult males and one adult female from Chinchao, October 28–November 20, 1922.

Compared with two young males from Molinopampa; also with a male of *T. aspersiventer* from Jatumpampa, Cochabamba, Bolivia.

The present species is very close to *T. aspersiventer* from northwestern Bolivia which, as indicated by Hellmayr (Field Mus. Nat.

Hist. Publ., Zool. Ser., 13, pt. 3, p. 104, footn. a, 1924) is similarly related to *caerulescens* and its races through *connectens*. With the material at hand it is impossible to demonstrate intergradation, although the forms are strict geographic representatives of each other and perhaps should be grouped together under the specific name *caerulescens*.

The Chinchao males show only the faintest trace of white barring or grayish coloration on the belly and flanks, which are pronounced in the Molinopampa specimens and shown in the original plate of the species.

Pygiptila stellaris maculipennis (Sclater).

Thamnophilus maculipennis SCLATER, Edinb. N. Philos. Journ., n. ser., 1, p. 247, 1855—"Peruvian Amazons"; British Mus.

A female from Puerto Bermúdez, March 19, 1923.

Compared with three males from San José and two females from Río Suno, Ecuador (Amer. Mus. Nat. Hist.), and a male from Contamana, Río Ucayali, Perú; also with fourteen skins of *purusiana* from the Rio Purús (four males and six females, including the type, from Hyutanahán, two females from Arimã, and two females from Nova Olindo—all in Carnegie Mus.); and fifteen skins of *stellaris* from eastern Brazil (one male from Santarem, eight males from Colonia de Mojuy, Santarem, two females from Villa Braga, two females from Miriti tuba, one female from Itaituba, and one female from Aveiros, Rio Tapajoz—all in Carnegie Mus.).

The Puerto Bermúdez bird, although somewhat intermediate between *purusiana* and *maculipennis*, is much closer to the latter. It differs from the two Río Suno females by having the back much less gray and more olive brown with some grayish admixture, while the nape and upper interscapulars have only a slight grayish tinge. In spite of this, it is grayer above than all but one of the ten females of *purusiana* and has the tertials grayer, the lesser upper wing-coverts grayish with brownish edges, instead of uniform Cinnamon Brown, the upper surface of the tail deep gray, and the under parts with a faint grayish wash; in all of these characters, *maculipennis* appears to be separable from *purusiana*.

To further intensify the probability that the east-Peruvian bird is *maculipennis* and not *purusiana*, a male from Contamana, Río Ucayali, is darker above and below than four males of *purusiana* and has a generous admixture of black on the hind neck and upper interscapulars, serving to connect the black of the nape with that

of the middle interscapulars, while on the lower back it reaches to the rump. In these characters, the Contamana specimen agrees with three males of *maculipennis* from Ecuador and disagrees with *purusiana*.

Apparently, therefore, wherever *maculipennis* and *stellaris* may meet on the north bank of the Amazon (probably between the Rio Negro and the Rio Branco), south of the Amazon their meeting is prevented by the intervention of *purusiana*, although that form is not intermediate in racial characters but distinct from both the others. A series of *stellaris* from Santarem and the Rio Tapajoz is, in a sense, intermediate between *purusiana* and *maculipennis*. The males are exactly intermediate in the shade of gray, though in the extent of black on the upper back they are more like *purusiana*. The females are grayer above than *purusiana*, but are less grayish than typical *maculipennis;* the lesser upper wing-coverts occasionally are slightly grayish at base but the greater series have rather noticeable, though ill-defined, paler tips, thus combining the features of the other two forms. All three races are recognizable, although *purusiana* appears to have a curiously restricted range. It may extend eastward to the left bank of the Rio Madeira and northward to the Javari, but at present it is known only from the Rio Purús.

Thamnistes anabatinus rufescens Cabanis.

Thamnistes rufescens CABANIS, Journ. Orn., 21, p. 65, 1873—Monterico, Perú; Berlin Mus.

Two males and two females from Huachipa, September 21–October 7, 1922.

No material for comparison.

One male and one female are noticeably darker and more rufescent (less ochraceous) than the others, probably more closely approaching *aequatorialis*.

Dysithamnus mentalis tambillanus Taczanowski.

Dysithamnus tambillanus TACZANOWSKI, Orn. Pér., 2, p. 30, 1884—Tambillo, n. Perú; Warsaw Mus.

Three adult males and one young male from Vista Alegre, August 19–October 16, 1922; four adult males, two young males, and three females from Huachipa, September 10–October 7; one male and one female from Chinchao, November 9 and 12.

Compared carefully with a series of *tambillanus* from San Ignacio, Huarandosa, Lomo Santo, and Chaupe, northern Perú (Amer. Mus.

Nat. Hist.), and a male from Moyobamba; also with a series of *D. m. olivaceus* from Tulumayo and La Merced, c. Perú (Amer. Mus. Nat. Hist.).

The present birds are somewhat intermediate between the two races but are noticeably closer to *tambillanus*, having the grayer backs and less yellowish bellies of the northern males; the throats are inclined to be paler but not as white as in *olivaceus*. The females of both races are too nearly alike in variability to be clearly distinguishable. The male from Moyobamba is like the present series.

Dysithamnus ardesiacus ardesiacus Sclater and Salvin.

Dysithamnus schistaceus SCLATER (nec D'ORBIGNY), P. Z. S. London, 26, p. 66, 1858—Río Napo, e. Ecuador; British Mus.

Dysithamnus ardesiacus SCLATER and SALVIN, P. Z. S. London, 1867, p. 75♂—new name for *D. schistaceus* SCLATER.

Four males and four females from Puerto Bermúdez, March 1–18, 1923.

Compared with the type and a female paratype of *huallagae* from Lagunas, n. Perú.

The males vary somewhat in the amount of black on the throat, but even the one with the most black has a generous amount of gray at the tips of the feathers. There is no trace of white on the mantle in either sex.

Myrmotherula brachyura (Hermann).

Muscicapa brachyura HERMANN, Tab. Aff. An., p. 299, note, 1783—based on "Le petit Gobe-mouche tacheté, de Cayenne"; BUFFON, Hist. Nat. Ois., 4, p. 554; DAUBENTON, Pl. Enl. 831, fig. 2; ♀; Cayenne.

A single male was taken at Puerto Bermúdez on March 16, 1923.

Compared with a male from Bogotá and two females from Moyobamba, Perú.

The Puerto Bermúdez bird differs from the Bogotá male in several respects. It is a little deeper yellow above and below; the scapulars have broader whitish outer margins which, on the uppermost, involve almost the entire outer web; the whitish scratches on the crown are less extensive; the rectrices are finely tipped with yellowish white; the feathers of the semi-concealed patch on the back are yellow to the base, instead of grayish at the base, and the extent of this patch is greater. These characters may be only individual. The two females from Moyobamba are more like the Bogotá male except for pale tips to the rectrices.

Myrmotherula longicauda australis Chapman.

Myrmotherula multostriata australis CHAPMAN, Amer. Mus. Novit., 86, p. 4, Aug. 1923—Rio Inambari, s. e. Perú; Amer. Mus. Nat. Hist.

One adult and one young male and one female from Vista Alegre, August 29–October 15, 1922.

Compared with a small series from northern Perú, eastern Ecuador (males only), Chanchamayo Valley, and Junín, Perú, and Department of Puno, southeast Perú.

All the males are nearly alike and almost indistinguishable. The females from Chanchamayo Valley and eastern Junín belong to typical *longicauda* and are separable from the others by a blacker, less buffy, tone of the upper surface and paler under parts, less heavily but more sharply streaked on the breast. The rest of the females are in general agreement although those from Moyobamba have the third outer rectrix less broadly tipped with white than the others. The Vista Alegre female is brighter and clearer in coloration than those from north and south, having the margins to the feathers of head and back rather deep ochraceous and the breast deep ochraceous, with the stripes broader and more clearly defined. These characters are so slight that it seems unwise to use them as the basis for descriptions of new subspecies unless they should be substantiated by large series from all parts of the regions under discussion, and yet the present arrangement is equally unsatisfactory. With *longicauda* restricted to the Chanchamayo Valley and eastern Junín and *australis* occurring in the southeast and north (the western boundary of the range reaches to the temperate zone which is uninhabitable for the species), we have one form virtually surrounded by the other. If the Vista Alegre birds should be described as new, the Moyobamba specimens would still be referable to *australis* whose range would then be interrupted by the interposition of two forms instead of one. It would be necessary to describe the Moyobamba birds (probably including Ecuadorian examples) as still another race on very minute characters, mainly on geographic grounds.[1] Probably it is best for the present to recognize but one variable form. Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 390, 1926) records typical *longicauda* from eastern Ecuador without having seen females from that region, but this is unlikely to be correct.

In any case, considerably more material is necessary before any definite changes can be proposed. With the present arrangement I must refer my Vista Alegre examples to *australis*.

[1] Since I penned the above account, *M. l. pseudoaustralis* has been described from Moyobamba by Gyldenstolpe (Ark. Zool., 21 A, No. 26, p. 28, 1930).

Specimens examined:

M. l. longicauda - Perú: San Ramón 1 ♂; Tulumayo, Junín, 2 ♂ 2 ♀[1].

M. l. australis—Perú: Moyobamba 4 ♂ 3 ♀; Vista Alegre 2 ♂ 1 ♀; Río Tavara 2♂[1]; La Pampa 1♂ 1 ♀[1]; Ecuador: Zamora 1♂; Macas 1♂[1].

Myrmotherula leucophthalma sororia Berlepsch and Stolzmann.

Myrmotherula sororia BERLEPSCH and STOLZMANN, Ibis, (6), 6, p. 396, 1894—La Gloria, Perú; Warsaw Mus.

A male from Vista Alegre and a female from Huachipa, August 27 and September 14, 1922.

The sexes are quite different as in the other races of the species, and as given in the original description of *sororia*, and I am unable to understand Chapman's statement (Bull. Amer. Mus. Nat. Hist., 55, p. 391, 1926) that in *sororia* the female is much like the male.

Myrmotherula atrogularis Taczanowski.

Myrmotherula atrogularis TACZANOWSKI, P. Z. S. London, 1874, p. 137—Amable Maria, Perú; formerly Warsaw Mus., now lost.

Myrmotherula guayabambae SHARPE, Bull. Brit. Orn. Club, 11, p. 2, 1900—Guayabamba (=Huayabamba), n. Perú; ♀; British Mus.

Two males from Vista Alegre and three females from Huachipa, August 28–October 13, 1922.

I have not seen topotypical material.

Taczanowski (Orn. Pér., 2, pp. 41–42, 1884) gave a more detailed description than in the original account, and pointed out differences between a male from Amable Maria and one from Huambo which he considered probably less mature than the other; Sclater (Cat. Birds Brit. Mus., 15, p. 235, 1890) re-described the Huambo male. My two males agree better with the description of the Huambo specimen than with that of the type of *atrogularis* in that the elongated feathers of the rump are quite noticeably tinged with grayish olive, which Taczanowski says is not the case in the type. Sharpe described *Myrmotherula guayabambae* from northern Perú, comparing it unfortunately to *fulviventris*. Hellmayr compared the type with a female of *atrogularis* from Huambo and reported the two birds to be identical (Novit. Zool., 13, p. 349, 1906). It is quite possible, however, that a separate form of *atrogularis* occupies northern Perú, including the Huallaga Valley as far south as Vista

[1] Specimens in American Museum of Natural History, New York.

Alegre, which should be known as *M. a. guayabambae* Sharpe, but a comparison must be made between Huambo specimens and topotypes of *atrogularis* before this separation can be formally approved. Unfortunately, I have no material for comparison.

Myrmotherula erythrura Sclater.

Myrmotherula erythrura SCLATER, Cat. Birds Brit. Mus., **15**, p. 236, pl. 15, 1890—Río Napo, Ecuador; ♀; British Mus.

A male and four females from Puerto Bermúdez, March 11–17, 1923.

Compared with a series of three males and three females from Río Suno and San José, Ecuador (Amer. Mus. Nat. Hist.).

Certain differences are apparent which may indicate a possible subspecific distinction. The male is a little buffier above than the Ecuadorian males, has a duller belly, white lores, and white throat, with only the faintest indication of dusky edges on a few feathers of the lower throat, while in the Ecuadorian specimens there are distinct blackish edges at the base of the gular feathers, giving a streaked appearance to the area. Unfortunately, the most pronounced character, that of the black-edged throat feathers, appears not to be constant, since Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 391, 1926) notes it as present in only three out of nine male specimens in hand.

The females from Perú can be told by the deeper orange buffy color below and by having the forehead, lores, and sides of the face buffy and not grayish as in Ecuadorian examples. The color of the mantle and the size of the pale spots on the upper wing-coverts appear to be valueless, since they can be matched rather closely in the two series.

Myrmotherula axillaris axillaris (Vieillot).

Myrmothera axillaris VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., **12**, p. 113, 1817—"La Guyane" = Cayenne.

A male and female were taken at Puerto Bermúdez, March 15 and 19, 1923.

Compared with eight males and five females from Bolivia, northeastern Brazil (Tury-assú, Maranhão, and Conçeição), and French Guiana; also with five skins of *melaena* from Moyobamba, Yurimaguas, and Rioja, northern Perú, Orope, Venezuela, and Bogotá, Colombia.

Apparently the Puerto Bermúdez birds belong to true *axillaris* although a thorough revision of the forms of this group probably would result in placing them in some other race. The male agrees with the Bolivian, east-Brazilian and French Guianan males in general characters but is a little smaller and has smaller spots on the upper wing-coverts. The female is grayer olive and less brownish than five others from northeastern Brazil and Bolivia, but the series is too meager to point out any constant differences.

Myrmotherula longipennis garbei Ihering.

Myrmotherula garbei IHERING, Rev. Mus. Paul., **6**, p. 441, pl. 15, fig. 1, 1905—Rio Juruá, w. Brazil; Mus. Paulista.

Myrmotherula longipennis IHERING (nec Pelzeln), op. cit., p. 441, pl. 15, fig. 2—Rio Juruá.

Myrmotherula longipennis longipennis HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., **13**, pt. 3, pp. 155–156—part, e. Perú.

Myrmotherula longipennis zimmeri CHAPMAN, Amer. Mus. Novit., **205**, pp. 9–10, Dec. 28, 1925—part, e. Perú.

One male was secured at Puerto Bermúdez on March 17, 1923.

Compared with five males of *garbei* from Caviana, São Paulo de Olivença, Arimã, and Hyutanahan, Brazil (Carnegie Mus.).

This Peruvian specimen seems to be inseparable from *garbei*, agreeing perfectly with one example from Arimã, Rio Purús, as well as with Ihering's fig. 2 of *longipennis* Ihering (nec Pelzeln).

Chapman, in describing *M. l. zimmeri* from Ecuador, recorded my Peruvian specimen as belonging to his new form on the basis of a comparison, made by Dr. Hellmayr, which seemed to show no differences between the Ecuadorian and Peruvian examples. Apparently, the males of *garbei* and *zimmeri* are indistinguishable. How different these two forms are, therefore, must be determined by an examination of representative females, and females from eastern Perú are needed to ascertain definitely the form to which the Peruvian birds belong. In the meanwhile, since it seems more probable that *garbei* extends its range westward to eastern Perú than that *zimmeri* ranges southward from Ecuador across the Marañón and up the Ucayali River as far as Puerto Bermúdez, I have referred the present specimen tentatively to *garbei*.

Herpsilochmus axillaris (Tschudi).

Thamnophilus axillaris TSCHUDI, Archiv. Naturg., **10**, (1), p. 278, 1844—Perú; Mus. Neuchâtel.

One female from Huachipa, October 4, 1922.

I have no material for comparison other than a pair of the more or less closely related form, *H. rufimarginatus frater* from northeastern Brazil, from which it is, of course, quite distinct.

Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 395, 1926) has united *H. axillaris aequatorialis* with *H. a. axillaris* after comparison of a male from southeastern Perú and one from eastern Ecuador. These he found to agree in the characters by which Taczanowski and Berlepsch separated *aequatorialis* from *axillaris*, so the species is probably variable. Apparently it is quite rare, both in the field and in collections.

My bird was taken in the heavy tropical forest where it inhabited the undergrowth.

Cercomacra nigrescens approximans Pelzeln.

Cercomacra approximans PELZELN, Orn. Bras., **2**, pp. 85, 158, Sept. 1868—Engenho do Gama and Matto Grosso, Brazil; Vienna Mus.

Two males and three females taken August 17–24, 1922, at Vista Alegre; and one female, November 17, at Chinchao.

For comparison I have only a male and female from La Merced, Chanchamayo Valley, and a female from Poco Tambo, near Rioja.

The Poco Tambo specimen is considerably more rufescent than the more southern females which, however, are somewhat variable. One female from Vista Alegre shows traces of white on the lesser upper wing-coverts; another from the same place has two more or less distinct buffy wing bars. One Vista Alegre male has the concealed white dorsal patch very much reduced; the other has it quite large. The females vary also in the extent of this patch. The two Vista Alegre males show both the blackest and the palest extremes of gray upper surface; the La Merced male is intermediate. The form seems to be quite variable in the central Peruvian region and is probably referable to *approximans*, although the northernmost (Poco Tambo) example might prove to be separable if sufficient material were available to determine its status.

Cercomacra serva (Sclater).

Pyriglena serva SCLATER, P. Z. S. London, **26**, p. 66, 1858—Quixos, e. Ecuador; British Mus.

A male and a female were taken at Puerto Bermúdez on March 13 and 18, 1923.

I have no material for comparison.

The birds were found among the miscellaneous species associated in the vagabond flocks of the tropical forest.

Pyriglena leuconota picea Cabanis.

Pyriglena picea CABANIS, Arch. Naturg., 13, (1), p 212, 1847 Perú; HELLMAYR, 1924, suggests Chanchamayo; Mus. Neuchâtel

A single male taken at Vista Alegre, August 28, 1922.

Compared with two females from Chilpes and Utcuyacu, Perú (Amer. Mus. Nat. Hist.), and two females of *pacifica* from Chimbo and Naranjo, Ecuador (Amer. Mus. Nat. Hist.).

Unfortunately no female was found; hence exact determination of the form is impossible, but from geographic grounds there is not much doubt that the Vista Alegre specimen belongs to *picea*.

The bird was found in a thicket of second growth along the roadside at the edge of the tropical and subtropical zones and was very active and elusive.

Myrmoborus myotherinus myotherinus (Spix).

Thamnophilus myotherinus SPIX, Av. Bras., 2, p. 30, pl. 42, fig. 1, 1825—no loc. = Fonteboa; BERLEPSCH and HARTERT, 1902; ♂; type lost.

Hypocnemis melanolaemus SCLATER, P. Z. S. London, 22, "1854," p. 254, pl. 72, fig. 2, 1855—Chamicuros, Perú; British Mus.

Hypocnemis melanosticta SCLATER, t. c., p. 254, pl. 73; Chamicuros; ♂ juv. and ♀.

Four males and one female from Puerto Bermúdez, March 12 and 13, 1923.

Compared with a series of birds from São Paulo de Olivença, Rio Solimoës, Brazil, a series from Bolivia, and a male and female from Yurimaguas, Perú. (See subjoined list of specimens examined.)

In the combined series, certain differences are apparent which may or may not be worthy of recognition by name. Compared with the São Paulo birds, Bolivian males average a trifle paler above and darker below, noticeable only in series; Bolivian females are a trifle paler brown above and deeper ochraceous buff below, with the dark spots on the breast more pronounced.

The Puerto Bermúdez males, compared with the São Paulo birds, are slightly darker above and below; the single female is a little deeper ochraceous below and possibly darker above, while the spots on the breast are a little heavier than in one São Paulo example (they are obsolete in the other São Paulo female). Compared with the Bolivian series, the Puerto Bermúdez males average darker above

and below; the female is about the same above, a little paler than the average below, and the spots on the breast are smaller than the average.

Of the Yurimaguas pair, the male is paler above than the São Paulo birds but equal below; the female is paler above and about equal below, with the spots on the breast as in the Puerto Bermúdez female.

There is evidently considerable local variation, but I am unable to separate any distinct races from these examples without recognizing a different one from each locality. The name *melanolaemus* would be applicable to the north-Peruvian examples, but these are less separable than central Peruvian or Bolivian specimens. Consequently, I believe it is more advisable to consider them all as belonging to one form, albeit a variable one.

The use of the name *myotherinus* seems justifiable on the basis of Berlepsch and Hartert's designation of type locality as Fonte Boa (Novit. Zool., **9**, p. 78, April, 1902). Hellmayr rejected this designation in the belief that Spix had never visited Fonte Boa, while specimens from Rio Ica fitted Spix's description better than examples from south of the Amazon, and he designated Rio Ica as type locality (Arch. Naturg., **85**, A, Heft 10, p. 112, footn. 1, 1920). However, Spix actually spent three days at Fonte Boa (Reise Bras., **3**, p. 1184, 1831) so that, in the absence of proof that his type of *Thamnophilus myotherinus* came from somewhere else, we are not justified in rejecting Berlepsch and Hartert's designation. The São Paulo de Olivença examples are thus topotypical of *myotherinus*.

Specimens examined:

M. m. myotherinus—Brazil: São Paulo de Olivença 7 ♂ 2 ♀[1]; Prov. del Sara 3 ♂ 1 ♀[1]; Rio Surutu 3 ♂ 4 ♀[1]; Rio Yapacani 1 ♂[1]; Todos Santos 1 ♂. Perú: Puerto Bermúdez 4 ♂ 1 ♀; Yurimaguas 1 ♂ 1 ♀.

M. m. elegans—Colombia: La Murelia 2 ♂ 1 ♀[2]; Florencia 1 ♂ 2 ♀[2]. Ecuador: Río Suno 4 ♂ 4 ♀; San Jose de Sumaco 2 ♂ 2 ♀[2].

Hypocnemis cantator peruvianus Taczanowski.

Hypocnemis cantator peruvianus TACZANOWSKI, Orn. Pér., **2**, p. 61, 1884—Yurimaguas, Perú; Warsaw Mus.

One male from Puerto Bermúdez, March 6, 1923.

[1]Specimens in Carnegie Museum.
[2]Specimens in American Museum of Natural History.

Compared with four males and one female from Moyobamba.

The combined series of males appears to be uniform except that the Puerto Bermúdez example is rather smaller than the more northern birds (wing 53 mm. as against 60; tail 36 mm. as against 41–42).

The specimen was found in the wet tropical forest.

Hypocnemis flavescens subflava Cabanis.

Hypocnemis subflava CABANIS, Journ. Orn., **21**, p. 65, 1873—Monterico, Perú; formerly Warsaw Mus., now lost.

A female from Río Colorado, Chanchamayo, February 25, 1923.

Compared with a male from Chanchamayo, Perú, and one from Todos Santos, Bolivia.

The Río Colorado and Chanchamayo birds are nearly topotypes of *subflava*, but I have no true *flavescens* for comparison. The Bolivian bird appears to be inseparable from the Chanchamayo male.

Schistocichla schistacea intensa (Zimmer).

Myrmeciza schistacea intensa ZIMMER, Proc. Biol. Soc. Wash., **40**, p. 208, 1927—Huachipa, Perú; ♀; Field Mus. Nat. Hist.

A female (the type) and two males from Huachipa, and a male from Vista Alegre, August 26–September 22, 1922.

Compared with seven males and two females of *schistacea* from São Paulo de Olivença and Tonantins, w. Brazil (Carnegie Mus.), and five males and four females of *subplumbea* from Río Suno, Ecuador, and La Murelia, Colombia (Amer. Mus. Nat. Hist.).

While admitting Todd's genus *Schistocichla*, I am of opinion that *subplumbea* and *intensa* are only races of *schistacea*. Compared with *leucostigma* the characters of bill, feet, and tail, as discussed by Todd (Proc. Biol. Soc. Wash., **40**, p. 165, 1927), are the same in *schistacea* as in *intensa* so that if *schistacea* is to be considered an aberrant form of the genus, *intensa* is similarly so. More material is needed from northeastern Perú south of the Amazon and west of the Javari.

This bird was noted as having a scolding note much like that of the North American House Wren.

Pithys albifrons peruvianus Taczanowski.

Pithys albifrons peruviana TACZANOWSKI, Orn. Pér., **2**, p. 73, 1884—Monterico, Amable Maria, Chyavetas; formerly Warsaw Mus., now lost.

A male and female from Puerto Bermúdez, March 16, 1923.

Compared with four specimens of *albifrons* from British and French Guiana.

The Puerto Bermúdez birds were secured from the low bushes along the trail through the heavy forest.

Hylophylax naevia theresae (Des Murs).

Conopophaga Theresae DES MURS in CASTELNAU, Exp. Amér. Sud, Ois., livr. 18, p. 51, pl. 16, fig. 2, June, 1856—Rio Javari, n. e. Perú; ♀; Paris Mus.

Four males from Huachipa and a female from Vista Alegre, August 26–October 4, 1922.

Compared with a male from Moyobamba, Perú; a male and female of *naevia* from the Mazaruni River, British Guiana; three males and three females of *consobrina* from Manacapurú, Brazil (Carnegie Mus.); and three males and two females of *obscura* from Tonantins, Brazil (Carnegie Mus.).

I have not seen topotypical examples of *theresae*, but my series differs from *naevia* as recorded for *theresae*, in the greater amount of gray with less brownish suffusion on the head, the smaller black saddle, and the heavier black spots on the breast. However, the characters are all variable. Three males of *H. n. obscura* from Tonantins, north bank of Rio Solimoës, are much closer. From *obscura*, the series of *theresae* males seem to differ only by having the crown and nape with more gray and less brown, the lower breast more ochraceous with less pure white, the ochraceous of lower belly and flanks less pinkish, the ground color of the back (exclusive of the black saddle) averaging duller and less rufous, and the black spots on the breast averaging heavier. Except for the color of the top of the head, the lower breast, and the belly and flanks, the two series overlap, and even within the series of *theresae* there is considerable variation in these particulars in the direction of *obscura*. The female of *theresae* is not fully adult. It differs from two females of *obscura* by being less rufescent brown above, with a larger black saddle having heavier pale spots on it; below, it is more ochraceous (less pinkish) buff, paler than one of the *obscura* females, darker than the other; the streaks on the breast are a little heavier than in either of the *obscura* females, in one of which they are much heavier than in the other.

Hylophylax poecilonota lepidonota (Sclater and Salvin).

Hypocnemis lepidonota SCLATER and SALVIN, P. Z. S. London, 1880, p. 160, —Sarayacu, e. Ecuador; ♀; British Mus.

A male from Vista Alegre, August 31, 1922, and a female from Puerto Bermúdez, March 16, 1923.

Compared with two males and three females from Zamora, Ecuador, and La Murelia, Colombia, from which they are not separable.

The male is not far removed from *griseiventris* of southern upper Amazonia, having the feathers of the lower mantle white for their basal half. The female, however, is quite unlike that race, being strikingly like the same sex of *gutturalis* from São Paulo de Olivença. The interrelationships of all the various races of *poecilonota* curiously are not demonstrable by either sex alone but only through the resemblances of females of certain forms and the males of others.

Myrmothera campanisona minor (Taczanowski).

Grallaria minor TACZANOWSKI, P. Z. S. London, 1882, p. 33—Yurimaguas, Perú; formerly Warsaw Mus., now lost.

One male of this species was secured at Puerto Bermúdez on March 13, 1923.

Compared with thirteen specimens of both sexes (Amer. Mus. Nat. Hist.) from Río Negro, Santa Rosa, Lagarto, Pomará, mouth of the Río Urubamba, and Orosa, Perú.

The Puerto Bermúdez example falls within the range of variation exhibited by the series. This consists of a slight change in the proportion of olivaceous and rufescent tones on the back, distinctness of the margins of the pectoral feathers, and intensity of the coloration of the under wing-coverts, with some differences in size in which the Puerto Bermúdez bird represents the minimum.

Grallaria squamigera canicauda Chapman.

Grallaria squamigera canicauda CHAPMAN, Amer. Mus. Novit., 231, p. 1, Oct. 16, 1926—Cocopunco, Larecaja, Bolivia; Amer. Mus. Nat. Hist.

A male from the mountains near Huánuco, 10,500 feet, June 1, 1922, and a pair from near Panao, 10,300 feet, July 3 and 14.

Compared with a series of 22 skins of *squamigera* from Colombia and Venezuela.

While the size and general coloration are much as in some Colombian specimens, the tail is more as described for *canicauda*, being gray like the back and not at all brownish. Probably these three examples are more or less intermediate between *squamigera* and *canicauda* but may best be referred to the latter race, although

the tails measure only 61–63 mm. in length, which is less than the measurements given for typical examples from Bolivia.

The bird inhabits the floor of the thickets in the low temperate zone, where it is never an obtrusive resident. Of those I found, one seemed to materialize out of the shadows as my eyes became accustomed to the gloom on entering a shadowed ravine, and was quietly disappearing behind an adjacent tree when I stopped it with a shot. Another was in a sheltered pathway as I rounded a bend and, rail-like, made instant use of its long legs to carry it into concealment among the grasses. The third was in a bit of hillside forest where the allied *G. rufula obscura* also was taken.

Grallaria rufula obscura Berlepsch and Stolzmann.

Grallaria rufula obscura BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 385—Maraynioc, Junín, Perú; Warsaw Mus.

An adult female from the mountains above Panao, July 3, 1922.

Compared with a male and a female from Maraynioc (topotypes of *obscura*) and a young female from Rumicruz, Junín; also with the type of *cajamarcae*, two males from Chugur, and a female from Taulis, near Pacasmayo (all in Amer. Mus. Nat. Hist.); also with the type and seven additional specimens of *occobambae* (Amer. Mus. Nat. Hist. and U. S. Nat. Mus.).

The Panao specimen is closest to *obscura* but shows considerable approach toward *cajamarcae*, as might be expected from the intermediate position of the locality. The forehead is uniform with the crown as in *obscura;* the color of the back is lighter and less rufescent than in *obscura* but more rufescent and less olivaceous than in *cajamarcae*. Beneath, the color is not definitive.

The Panao bird was taken in the temperate forest on the mountain slope.

Grallaria andicola (Cabanis).

Hypsibamon andicolus CABANIS, Journ. Orn., 21, p. 318, pl. 4, fig. 3, 1873—Maraynioc, Dept. Junín, Perú; Berlin Mus.

One male and three females from La Quinua, May 11–16, 1922, and two females from the mountains near Huánuco, 10,500 and 12,200 feet, June 7 and 26.

For comparison I have a female from the mountains near Balsas.

The series is rather uniform below, although the male and two of the females from La Quinua have a decided rosy suffusion on the belly which is not present in the others.

Above, there is a certain degree of variation in the amount of pale streaking. The male has the forehead and a broken collar on the hind neck with black-bordered buff streaks as in the others, but the rest of the back is comparatively uniform, with only ill-defined shaft lines of pinkish buff on the crown and interscapulars and a faint suggestion of black and buff on some of the scapulars. This seems to indicate a close relationship to *G. andicola* (as described; I have not seen examples of that form). The three females from La Quinua appear to be immature. Their rectrices and tertials are somewhat acute and are tipped with rather sharply defined, pale, triangular spots not noticeable in the other specimens. Two are only moderately streaked on the back; the other is the most heavily marked of all the series.

These birds inhabited the dense growths of bushes, ferns, and stunted trees that occupied portions of the hillsides in the temperate zone. They were very retiring in habits and required quiet stalking even to be seen. When found, the bird was usually standing large-eyed, silent, and motionless on a moss-grown root or similar perch or among the rotting leaves.

Geositta tenuirostris (Lafresnaye).

Alauda tenuirostris LAFRESNAYE, Mag. Zool., 6, cl. 2, p. 7 of text to pls. 58–59, 1836—no loc.; type from Sicasica, Bolivia; Paris Mus.

Upucerthia juninensis BRABOURNE and CHUBB, Bull. Brit. Orn. Club, 35, pp. 20–21, 1915—Junín, Perú; British Mus.

Two males from the mountains near Huánuco, 11,000 feet, June 7, 1922, and two females from Huánuco Viejo, December 20 and 24.

Compared with a male from near Otuzco, a male from Junín, and a specimen of unknown sex from Lara, Tucumán, Argentina.

My four birds agree with each other and differ from the three others in being more cinnamomeous buff below, with heavier brown edges on the breast feathers, distinctly brown sides of the breast, and with the white of the throat restricted to a small central patch; also in being richer (less grayish) brown above and more deeply rufescent on the wing lining. The Otuzco bird is exactly like the Argentine specimen; the Junín example is very like it also but has the wing bars more ochraceous and less rufous, being in this respect more like the Huánuco birds. The Otuzco and Huánuco Viejo skins have the shortest wings, the Argentine bird has the longest, while the Junín and Huánuco specimens are intermediate. One male from Huánuco has the longest bill of all, this being 38 mm. as against 33 in the Argentine example which is the next in the series.

These differences can not be arranged geographically and without more material I must conclude that they represent individual variations.

The species inhabits the high plains of the temperate zone, being found in the open grasslands.

Geositta crassirostris Sclater.

Geositta crassirostris SCLATER, P. Z. S. London, 1866, p. 98—Lima, Perú; British Mus.

Geositta fortis BERLEPSCH and STOLZMANN, Ornis, **11**, Nos 2, 3, p. 194, Nov., 1901—Pauza, Perú; Warsaw Mus.

One male and two females from Matucana, April 28–May 3, 1922.

No material for comparison.

These specimens differ from the description of *crassirostris* exactly as *fortis* is said to do in the original description of that species, but since they are practically topotypical of *crassirostris* (which was found on the hills around Lima), they should represent *crassirostris*. If allowance is made for the immaturity of Sclater's type, which is mentioned by Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., **13**, pt. 4, p. 14, footn. a, 1925), the Matucana specimens agree well enough with the description of the form in question to indicate the identity of both names.

These birds were taken on the steep arid hillsides.

Cinclodes fuscus longipennis (Swainson).

Furnarius longipennis SWAINSON, Anim. in Menag., p. 350, 1838—Perú (probably the northern part of the country); W. Hooker's coll., Cambridge (Eng.) Mus.?

Three males and one female from the mountains near Huánuco, 12,000–12,200 feet, June 2–25, 1922.

Compared with a series of 127 skins from Junín, Cerro de Pasco, Oroya, Puno, and Otuzco, Perú, and from various parts of Chile, Bolivia, and Argentina, representing several subspecies. The Huánuco birds differ from all the rest in their dark sooty coloration of the upper parts (less grayish than in *fuscus*, less rufescent than in *albiventris*). They show rather deep brown flanks and moderately heavily margined feathers on the upper breast, and the white band on the primaries usually becomes distinct buff on the secondaries (largely white in one example). From *rivularis* of the Junín plateau and more southeastern highlands of Perú, they are separable by their darker coloration above and below and by the more buffy band on the secondaries; from *albiventris* of northern Chile and Bolivia and

the northern highlands of Tucumán, Argentina, they are separable by the distinctly darker and less rufescent upper parts and flanks.

These characters are quite noticeable in fresh, full-plumaged specimens though less pronounced in worn examples. The single Otuzco bird I have is badly worn and faded and might be referred to *rivularis* if this fact were not taken into account. Dr. Hellmayr advises me that he has seen six examples from Cajamarca that were noticeably darker than Junín birds, thus confirming the apparent distinctness of northern specimens.

I use the name *longipennis* for this race with little hesitation. Swainson's description is very detailed in some respects and, so far as I can determine, is applicable to no other bird than *Cinclodes fuscus rivularis* or the present race. It is true that the under parts are described as white without mention of the dusky margins of the feathers or the brownish flanks, but if Swainson's specimen were greatly worn, as is the Otuzco bird at hand, these characters would have been overlooked in all probability. The locality was given as "Peru" and the type was from W. Hooker's collection which, as is apparent from a study of the various Peruvian species described by Swainson from the same source, indicates a locality somewhere in the northern part of the country. The species immediately following *longipennis* in Swainson's paper (*Furnarius fasciatus* = *Heleodytes fasciatus*) is a case in point, since it is not found south of the Huánuco district and is unknown from the region of Junín.

Consequently, I believe it is better to adopt Swainson's name for the northern birds than to apply a new name which might have to be relegated to synonymy if Swainson's type should be unearthed some time in the future. If my conclusions are incorrect it will be easy to supply a new name when it is needed.[1]

Cinclodes fuscus rivularis (Cabanis).

Cillurus rivularis CABANIS, Journ. Orn., 21, p. 319, 1873—Maraynioc, Junin, Perú; Berlin Mus.

Two males from Cerro de Pasco, May 8, 1922.

Compared with a series as mentioned under the preceding race.

The Cerro de Pasco birds agree well with others from Junín, Oroya, and Puno while they are separable from a series of typical *albiventris* from northern Chile and various examples of *longipennis* from more northern Perú.

[1]Since writing the above I have learned through Dr. Hellmayr that a number of the species credited by Swainson to W. Hooker's collection has lately been discovered in Cambridge, England.

Compared with *albiventris*, the birds from the Junín plateau are noticeably less rufescent on the upper parts, paler buffy on the flanks, and less heavily margined on the feathers of the chest.

Cinclodes atacamensis atacamensis (Philippi).

Upucerthia atacamensis PHILIPPI, Arch. Naturg., 23, (1), p. 263, 1857—San Pedro de Atacama, Chile; Santiago Mus.

One female from the Huallaga River below Cerro de Pasco, May 8, 1922.

Compared with a female from Putre, Tacna (Perú), two males and a female from Antofogasta, Chile, a male and female from Silola, Potosi, Bolivia, and a male and a female from Maimara, Jujuy, Argentina.

The Cerro de Pasco bird is noticeably different from the north-Chilean examples which were taken in May and June and are therefore comparable. The upper parts of the Peruvian bird are darker and browner rufescent, with the top of the head more dusky; the lower throat is more heavily marked with darker dusky tips on the feathers; the rest of the under parts are browner without any whitish tone on the mid line although the flanks are darker than the brownish buff belly.

Taczanowski's detailed description of *C. bifasciatus* (Orn. Pér., 2, p. 111, 1884), probably based on Jelski's three Junín specimens, agrees better with the Chilean series than with my example which is from the northern end of the Junín plateau. It is possible, therefore, that the differences now apparent would disappear in a series from central Perú. With only a single specimen available from this region it would be unwise to attempt the separation of a new form, although future investigations may establish the existence of a distinct race in the north.

Upucerthia validirostris jelskii (Cabanis).

Coprotretis jelskii CABANIS, Journ. Orn., 22, p. 98, 1874—Junín, Perú; Berlin Mus.

A male from Cerro de Pasco, May 8, 1922.

Compared with four specimens from Chipa, Junín (Amer. Mus. Nat. Hist.).

My bird agrees with the others in general characteristics but is noticeably more sooty throughout, with the crown rather darker than the back.

When first seen, this bird was running rapidly along the hillside with head and tail outstretched in a line with the back, looking very much like a long-tailed mouse.

Upucerthia serrana Taczanowski.

Upucerthia serrana TACZANOWSKI, P. Z. S. London, 1874, p. 525—Junín, Perú; formerly Warsaw Mus., now lost.

Cinclodes neglectus CORY, Auk, 36, p. 89, 1919—Otuzco, Perú; Field Mus. Nat. Hist.

One female from La Quinua, May 15, 1922, and one male and two females from the mountains near Huánuco, 12,200–12,500 feet, June 12–29.

Compared with the type of Cory's *neglectus* from near Otuzco.

My series is rather uniform in coloration, although the female from La Quinua has the sides of the forehead distinctly cinnamomeous, which is not the case in the Huánuco birds.

The type of *neglectus* is immature, with the rectrices more acute at the tips than in the adults and with the bill (which lacks most of the maxilla) short, a fact which may have misled Cory in his determination of the genus. Its color is slightly paler and more amber rufous above than any of my series from central Perú, but this also may be due to immaturity. Other characters are well matched.

Leptasthenura striata cajabambae Chapman.

Leptasthenura striata cajabambae CHAPMAN, Amer. Mus. Novit., 18, p. 9, 1921—Cajabamba, Perú; Amer. Mus. Nat. Hist.

Two males from La Quinua, May 15 and 16, 1922; a female from the mountains near Huánuco, June 18; and a male from Cullcui, Marañón River, December 11.

Compared with five males and two females of *striata* from Tacna (Perú) and Tarapacá, Chile.

The Expedition series agrees with Chapman's description and differs from *striata* by the characters given in the original account. The La Quinua birds show a slight approach to *striata* by having the crown somewhat paler and more tawny than in the Huánuco and Cullcui examples, but even in this respect they are closer to *cajabambae* and are perfectly typical in other characteristics.

These birds were very active and agile and clambered about the bushes and trees in a manner suggesting titmice.

Synallaxis azarae infumata Zimmer.

Synallaxis azarae infumata ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, No. 8, p. 103, 1925—Chinchao, Perú; Field Mus. Nat. Hist.

A male (the type) and two females from Chinchao, October 30–November 13, 1922.

Compared with ten skins of *azarae*, thirty skins of *elegantior*, thirteen of *fruticicola*, five of *media*, and one atypical example of *infumata* from Molinopampa, as indicated in the original description.

Cranioleuca baroni baroni (Salvin).

Siptornis baroni SALVIN, Novit. Zool., 2, p. 14, 1895—Huamachuco, Perú; British Mus.

One male from Cullcui, Marañón River, December 11, 1922.

Compared with two males and five females of *C. b. capitalis* from the mountains of the upper Huallaga Valley.

This specimen agrees with a detailed manuscript description of the type made by the late Count Berlepsch.

Cranioleuca baroni capitalis Zimmer.

Cranioleuca baroni capitalis ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, No. 4, p. 54, 1924—La Quinua, Perú; Field Mus. Nat. Hist.

One male (the type) and three females from La Quinua, May 13 and 14, 1922; a male from the mountains near Huánuco, 10,500 feet, May 31; and two females from near Panao, July 5 and 16.

Compared with the male of *baroni* from Cullcui.

The present species was found in the scrubby trees and thickets of the temperate zone, going about in small flocks of five to ten individuals. It was very active and acrobatic, clambering about the trees in every conceivable attitude and seeming more at home when upside down than otherwise. Its call note was harsh but not unpleasing. At Panao I heard one individual several times utter a curious "quick-quick-quick-he-e-e-e-e."

Asthenes pudibunda pudibunda (Sclater).

Synallaxis pudibunda SCLATER, P. Z. S. London, 1874, p. 445, pl. 58, fig. 1—Obraillo (near Cauta, Dept. Lima), Perú; formerly Warsaw Mus., now lost.

A female from Matucana, May 3, 1922.

Compared with four males of *A. p. neglecta* from Macate, Perú, including the type.

The Matucana bird agrees excellently with Sclater's description and figure though not with Cory's synoptic key (Proc. Biol. Soc. Wash., **32**, p. 149, 1919) since there is no dusky shading on the second outer rectrix and only a faint trace of it on the third, exactly as in the form described by Cory as *neglecta*.

In comparison with the series of *neglecta*, there is a pronounced difference in the color of the gular patch which here is bright Ochraceous-Tawny but which is Hazel x Chestnut or Sanford's Brown in the northern examples. The size also is noticeably different. The Matucana specimen has a wing measurement of 56 mm. (54 not flattened), tail 69, exposed culmen 12½, and tarsus 20. The Macate specimens have the wing 60–64 mm. (not flattened 58-62), tail 80–88, exposed culmen 14–15, and tarsus 21½–22. The type of *pudibunda* (with original measurements reduced to millimeters) is said to have the wing 53.34 mm., and tail 73.66, with which the Matucana bird is in closer agreement than the others.

Berlepsch and Stolzmann (Ornis, **13**, p. 70, Sept., 1906) record one adult and one immature male from Coracora, Ayacucho, which the authors state agree well with Sclater's description of his Obraillo specimen but which have the wing 61½–62½ mm., tail 74½–82½, bill 13¾, and tarsus 21½–22. The measurements are close to those of the Macate birds. Much more material is desirable to ascertain the distribution and variation of the supposed races, but it seems probable that Cory's form is worthy of recognition.

Asthenes humilis (Cabanis).

Synallaxis humilis CABANIS, Journ. Orn., **21**, p. 319, 1873– Maraynioc, Perú; Berlin Mus.

Three males and five females from the mountains near Huánuco, 12,200 feet, June 19–28, 1922.

Compared with the type (Berlin Mus.), four males from Junín, Santiago, and Cajamarca (Amer. Mus. Nat. Hist.), and another male from Junín (Field Mus. Nat. Hist.).

There is some variation in the prominence of the dorsal streaking or spotting, the extent of rufous or cinnamon color on the outer rectrices, the size and hue of the chestnut patch on the throat, the color of the under wing-coverts, and the depth of buffy tone on the under parts, but these differences seem to be purely individual.

This spine-tail was almost entirely terrestrial in habits and was often found running actively through the grass and climbing over

the tumbled rocks in dry ravines. A favorite perch was the top of a rock where it would sit and jerk its tail sideways while it "barked" in short, staccato notes in a ludicrous suggestion of the actions of a prairie dog (*Cynomys ludovicianus*). It was usually wary and not easily approached.

Asthenes flammulata taczanowskii (Berlepsch and Stolzmann).

Siptornis taczanowskii BERLEPSCH and STOLZMANN, Ibis, (6), 6, p. 393, 1894 —Maraynioc, Perú; Warsaw Mus.

Four males and two females from the mountains near Huánuco, 12,000 12,500 feet, June 7-28, 1922.

Compared with a male from near Balsas, northern Perú.

I have seen no topotypical material but the specimens at hand agree well with the original description and with Taczanowski's later, more detailed account (Orn. Pér., 2, p. 139, 1884). The male from near Balsas is a little brighter brown on the back and redder on the top of the head, with less streaking on the forehead and possibly more brown at the tips of the auriculars; otherwise it can be matched in the series from Huánuco.

This bird was fairly common among the bushes and trees in the mountains, clambering about the trunks and branches quite actively. So far as I observed, it was silent. I never saw it other than arboreal but nevertheless caught one in a mouse trap on the ground on June 21.

Asthenes urubambensis huallagae (Zimmer).

Siptornis urubambensis huallagae ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, No. 4, p. 53, 1924 mountains near Huánuco, 12,200 feet, Perú; Field Mus. Nat. Hist.

The type and a female from the same locality, June 28 and 22, 1922.

Compared with two males and two females from Machu Picchu (U. S. Nat. Mus.).

This species was found in company with *A. h. humilis* and *A. flammulata taczanowskii* on the upper slopes of the mountains. Its habitat was among the vines and creepers growing over the boulders and in the thickets of moss-covered trees in the cloud-forest, about which it clambered somewhat in the manner of a tree-creeper. While *taczanowskii* was almost strictly arboreal and *humilis* equally strictly terrestrial, the present bird was at home in the company of both the others.

Margarornis squamigera peruviana Cory.

Margarornis perlata peruviana CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 291 Molinopampa, Perú; Field Mus. Nat. Hist.

Two adult males, one immature male, and three adult females from near Panao, July 3–12, 1922.

Compared with seven specimens from Molinopampa (including the type); also with a male and female from Torontoy, a female from Machu Picchu, and an immature specimen from Maraynioc (Amer. Mus. Nat. Hist); twenty-seven examples of *perlata* from Ecuador, Colombia, and Venezuela (eleven in U. S. Nat. Mus.); and a female of *squamigera* from Limbani, Carabaya, Perú.

Throughout these series, the differences between the various subspecies are quite recognizable, in some cases very pronounced.

The young male from Panao reproduces the pattern and colors of the adult in softened form. It has the yellow spots on the under parts broader, deeper yellow, and less sharply margined with dusky white; on the center of the belly the spots occupy the entire feather except for a narrow dusky border, thus losing their characteristic drop-like appearance.

Premnoplex brunnescens brunnescens (Sclater).

Margarornis brunnescens SCLATER, P. Z. S. London, 25, p. 27, pl. 116, 1856—Bogotá; British Mus.

Two adult males from Huachipa and Vista Alegre, September 12 and August 28, 1922.

Compared with three specimens of *brunnescens* from Colombia and one of *stictonotus* from Bolivia.

The two Peruvian examples belong to *brunnescens* by reason of lacking the conspicuous spotting of the back as found in *stictonotus* but here only faintly suggested; also by having the under tail-coverts less largely spotted.

The Vista Alegre bird has the pale centers of the belly feathers rather broader than any of the others, not excepting the Huachipa example, while both Peruvian skins are a little browner and less rufous above than the Colombian examples, with the top of the head duller and with a slightly greater amount of pale hair-streaks on the back. In these respects they show an approach toward the characters of *stictonotus* of Bolivia and southeastern Perú; the differences between that form and *brunnescens* in these particulars is not great.

The species was found in the tropical zone forest.

Pseudocolaptes boissonneauti medianus Hellmayr.

Pseudocolaptes boissonneauli medianus (err. typ.) HELLMAYR, Anz. Orn. Ges Bayern, No. 1, p. 3, Febr., 1919 —Leimabamba, n. Perú; Munich Mus.

One female from near Panao, July 13, 1922.

Compared with four skins of *boissonneauti* from Colombia (Bogotá, La Florida, and near Popayan) and with eight skins of *meridae* from Venezuela.

The Panao specimen has the neck tufts not pure white as indicated in the original description but slightly tinged with yellowish along the lower margin. The measurements are at the minimum for *medianus* (wing, 107 mm.; tail, 98½). It is thus somewhat intermediate between typical *medianus* and *auritus*, judging by descriptions.

The specimen was taken in the bamboo thickets along the river. When first seen the bird was facing me and had the neck tufts expanded laterally so that they stood out from the sides of the head, giving it an owlish appearance. A second individual was seen but not secured.

Ancistrops strigilatus (Spix).

Thamnophilus strigilatus SPIX, Av. Bras., 2, p. 26, pl. 36, fig. 1, 1825— no loc.; Rio Solimoes, Brazil, suggested by HELLMAYR, 1925; Munich Mus.

Anabates lineaticeps SCLATER, Ann. Mag. Nat. Hist., (2), 17, p. 468, 1856 e. Perú; (ex Verreaux coll.) British Mus.

A male from Puerto Bermúdez, March 17, 1923.

Compared with a male in the United States National Museum from "Pérou (ex Verreaux)," and with a large series in the Carnegie Museum from São Paulo de Olivença, Tonantins, and Hyutanahán, Brazil.

There are no striking differences apparent in the series although there is some irregular variation in the hue of the lesser upper wing-coverts. Spix's original description and plate both fail to record the rather conspicuous superciliary stripe, but in other respects they are identifiable with the birds under discussion.

Philydor subfulvus Sclater.

Philydor subfulvus SCLATER, P. Z. S. London, 1861, p. 377—Gualaquiza, Ecuador; British Mus.

A male from Huachipa, September 11, 1922.

No material for comparison.

This species is closely related to *P. atricapillus*, although the two species are separated by a wide extent of territory.

Philydor rufus bolivianus Berlepsch.

Philydor columbianus bolivianus BERLEPSCH, Ornis, 14, p. 366, Febr., 1907—Santa Cruz de la Sierra, Bolivia; Berlepsch coll., Frankfort Mus.

One male from Huachipa, September 18, 1922, and three females (one immature) from Vista Alegre, August 21 and September 1.

Compared with two males from Vermejo, Santa Cruz, Bolivia (Amer. Mus. Nat. Hist.), and two males and two females of *rufus* from São Sebastião and Fazenda Cajoá, São Paulo, Brazil.

The Peruvian specimens, in comparison with the Bolivian, are perhaps a trifle darker on the back, a shade grayer on the crown, and with the forehead less extensively ochraceous, but the differences are not pronounced.

The immature female, which is nearly adult, is distinguishable from the full-grown birds by having the colors clearer, the bill shorter, less uncinate, and uniformly blackish except at the extreme tip, and the rectrices more sharply pointed, with downy plumules still attached to the tips of the feathers.

The present specimens are the first known from Perú.

Philydor erythropterus (Sclater).

Anabates erythropterus SCLATER, P. Z. S. London, 24, p. 27, 1856—Bogotá; British Mus.

A single female from Puerto Bermúdez, March 12, 1923.

No material for comparison.

In some respects, such as the comparative lengths of wing and tail and the shape of the bill, this bird resembles *Automolus* more than it does *Philydor*. It appears to be a very rare species.

Automolus infuscatus infuscatus (Sclater).

Anabates infuscatus SCLATER, Ann. Mag. Nat. Hist., (2), 17, p. 468, 1856—e. Perú, upper branches of Peruvian Amazon; British Mus.

Three males and two females from Puerto Bermúdez, March 15–18, 1923.

Compared with a female from Puerto Arturo, Yurimaguas.

The Yurimaguas bird differs from my series by having a little more rufous tone on the forehead, mantle, and under wing-coverts,

and paler sides of the breast. It seems to be not fully adult, however, which may account for the differences.

The species was found only among low bushes in the forest. It was exceedingly active, constantly darting from one bush to another and back again, or circling to a different thicket. Attempts to stalk it openly were not very successful.

Xenops minutus obsoletus Zimmer.

Xenops minutus obsoletus ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 57, 1924—Puerto Bermúdez, Perú; Field Mus. Nat. Hist.

A male (the type) from Puerto Bermúdez, March 15, 1923; a female from the Río Colorado, Chanchamayo Valley, January 30; and a male and a female from Huachipa, October 4 and September 28, 1922.

Compared with various skins of typical *minutus, genibarbis, ruficaudus,* and *littoralis* as tabulated in the original description.

Xenops rutilans purusianus Todd.

Xenops rutilus purusianus TODD, Proc. Biol. Soc. Wash., 38, p. 79, 1925 Hyutanahán, Rio Purús, Brazil; Carnegie Mus.

A male from Chinchao, November 8, 1922, and two males and a female from Huachipa, September 15–October 5.

Compared with a female and two males from the type locality and a male and female from Arimã (Carnegie Mus.); also with eight specimens of *rutilans* from eastern Brazil and Misiones, Argentina; a female of *connectens* from Jujuy, Argentina; a female of *guayae* from Puente de Chimbo, Ecuador; seven skins of *heterurus* from Bogotá and Santa Elena, Colombia; and the type and three other skins of *septentrionalis* from Costa Rica and Panamá.

The Chinchao bird agrees best with *purusianus* although it differs in having less black in the tail than the average of that form. Without more Peruvian material I can not tell if this difference and others may be significant.

Xenops rutilans Temminck, 1821, antedates *Xenops rutilus* Lichtenstein, 1823, as the specific name of this group.

Sclerurus albigularis zamorae Chapman.

Sclerurus albigularis zamorae CHAPMAN, Amer. Mus. Novit., 86, p. 17, 1923—Zamora, e. Ecuador; Amer. Mus. Nat. Hist.

Three males and two females from Huachipa, September 11–October 7, 1922.

Compared with three female topotypes (Amer. Mus. Nat. Hist.); also with five males, three females, and three examples of unknown sex of *propinquus* from Santa Marta, Colombia (Carnegie Mus.), and twelve skins of *albigularis* from eastern Colombia, Venezuela and Trinidad (Amer. Mus. Nat. Hist.).

The Huachipa birds are more strongly marked and more distinct from *albigularis* and *propinquus* than are the topotypes examined in this connection. Two of my specimens agree well with one from Zamora which is darker than the other two, but three of mine are still darker, especially one which has the pectoral band almost clear Auburn x Argus Brown. In all of the specimens the upper tail-coverts are but slightly brighter than the back, the character which seems to be of greatest use for the separation of this subspecies.

Sclerurus mexicanus peruvianus Chubb.

Sclerurus mexicanus peruvianus CHUBB, Bull. Brit. Orn. Club, 39, p. 41, 1919—Yurimaguas, e. Perú; British Mus.

A female from Puerto Bermúdez, March 6, 1923.

Compared with a female from Zamora, e. Ecuador (Amer. Mus. Nat. Hist.); also with the type of *pullus* and a topotype (female), and a male and female from Costa Rica (Mus. Comp. Zool.), six specimens of *obscurior* from Colombia and w. Ecuador (five in Amer. Mus. Nat. Hist.; one in Mus. Comp. Zool.), and five skins of *anomalus* from Panamá and La Frijolera, Colombia (Mus. Comp. Zool.).

The Puerto Bermúdez and Zamora birds appear to be inseparable from each other and referable to this dull colored race.

Lochmias nematura obscurata Cabanis.

Lochmias obscurata CABANIS, Journ. Orn., 21, p. 65, 1873—Monterico, Perú; type formerly in Warsaw Mus., now lost.

A single male from Chinchao, November 12, 1922.

Compared with a male and female from Pico Naigata, Miranda, Venezuela (Carnegie Mus.), a specimen of undetermined sex from the Bogotá region, Colombia (Amer. Mus. Nat. Hist.), and a male from the Department of Santa Cruz, Bolivia (Carnegie Mus.); also with a number of skins of *nematura* from Uruguay, Paraguay, and Brazil (U. S. Nat. Mus. and Field Mus. Nat. Hist.).

The Venezuelan birds are topotypes of *sororia* and the Colombian specimen is referable to the same form. The Bolivian bird is more like the Peruvian skin. Thus aligned, *obscurata* appears to be larger

than *sororia* (wing 77–78 mm. in males as against 75 male, 72 female, and 70 sex unknown), its upper surface averages duller and less rufescent, the white on the throat averages broader, and that on the belly narrower and more restricted on each of the feathers. The two races are exceedingly close, however, and in larger series may prove to be inseparable.

Xiphorhynchus chunchotambo chunchotambo (Tschudi).

D(endrocolaptes) Chunchotambo TSCHUDI, Arch. Naturg., **10**, (1), p. 295, 1844 Perú (probably Chanchamayo region); Mus. Neuchâtel.

Four males and two females from Huachipa, September 11 October 2, 1922.

Compared with a male from Pozuzo and a female from Rioja, Perú; also with two specimens of unknown sex from "Bolivia" and a male from Río Espírito Santo, Bolivia.

The Pozuzo bird, which probably is nearly topotypical, is more rufescent in ground color than the other Peruvian birds which are more olivaceous. The Bolivian birds agree with the Pozuzo example in general coloration, but have the pale portions of the throat and breast feathers a little deeper buff than in any Peruvian skin. Also they are distinctly smaller in all measurements than the Peruvian series (wing, male, 97½ mm.; unsexed specimens, wing, 88½ and 92 as against males, 102–108 mm.; females 98-101; other measurements in proportion). Considerably more material is necessary from Bolivia and the Chanchamayo region before determining any constant differences.

This species is woodpecker-like in habits, clinging to the sides of the tree trunks and hammering on the bark in similar manner. It often accompanied the vagabond flocks of the tropical forest where it was found.

Xiphorhynchus elegans insignis (Hellmayr).

Dendrornis insignis HELLMAYR, Bull. Brit. Orn. Club, **15**, p. 55, 1905 Samiria, Río Marañón, Perú; Berlepsch coll., Frankfort Mus.

A male and female from Puerto Bermúdez, March 14 and 15, 1923.

No material for comparison.

The male has the pale spots on the mantle smaller than in the female and not sharply outlined with blackish, the pale spots of the lower breast and belly are obscure, and there are distinct, though

fine, pale hair lines on the terminal part of the shafts of the lesser and middle upper wing-coverts. These details show an approach toward *elegans* as described.

Lepidocolaptes fuscicapillus fuscicapillus (Pelzeln).

Picolaptes fuscicapillus PELZELN, Orn. Bras., 1, pp. 44, 63, 1868—Engenho do Gama, Brazil; types in Vienna Mus.

A male from the Río Colorado, Chanchamayo Valley, February 7, 1923.

Compared with a male and female of *L. f. layardi* from Tury-assú, Maranhão, Brazil, and a male of *L. f. madeirae* from Porto Velho.

The feathers of the forehead and crown have dusky tips, most noticeable on the sides, and a faint suggestion of pale subterminal spots, suggesting relationship with some of the forms with spotted heads. The ventral coloration is decidedly buffier than in the specimens of *layardi* and *madeirae;* the general coloration of the upper parts is nearer to that of *madeirae*.

Campylorhamphus trochilirostris napensis Chapman.

Campylorhamphus trochilirostris napensis CHAPMAN, Amer. Mus. Novit., 187, p. 4, Sept. 28, 1925—Río Suno, above Avila, e. Ecuador; Amer. Mus. Nat. Hist.

A male from Puerto Bermúdez, March 17, 1923, and a female from Vista Alegre, August 20, 1922.

Compared with the type (male), a topotype (female), and another female from the Río Suno (Amer. Mus. Nat. Hist.), and with a male and female of *thoracicus* from Puente de Chimbo, w. Ecuador.

The Peruvian birds unquestionably are closest to *napensis*, being more rufescent (less olivaceous), with narrower, less conspicuously margined, pale streaks above and below and with browner (less blackish) top of the head; also the bill is paler and slightly more curved than in *thoracicus*.

The Peruvian specimens have noticeably longer wings than the Río Suno birds (male 98 mm. and female 102 mm. as compared with male 96 and females 95 and 93, respectively), but without larger series to determine the limits of individual variation, the significance of this feature is uncertain. The Vista Alegre and Río Suno females are very similar in coloration, especially below; above, the Vista Alegre specimen is somewhat more narrowly streaked, being

more like the type in this respect. The Puerto Bermúdez example is more narrowly streaked below while the streaks on the mantle are more clearly margined with dusky as in the Río Suno examples. The type has the belly more distinctly streaked than the other specimens. Apparently these various features are more or less variable within certain limits which define the race as distinct from *thoracicus*. Sztolcman's *C. t. zarumillanus* from Lechugal, n. w. Perú, seems to be a synonym of *thoracicus* though it exhibits some differences corresponding to the variation shown to be present in *napensis*.

The two Peruvian specimens extend the known range of *napensis* considerably to the southward, since there are no other records of this race from any part of Perú.

In habits these birds were very creeper-like, ascending the boles of forest trees and exploring the crevices of the bark in search of food.

Glyphorhynchus spirurus castelnaudii Des Murs.

Glyphorhynchus castelnaudii DES MURS in CASTELNAU, Expéd. Amér. Sud, Zool., 1, livr. 18, Ois., p. 47, pl. 15, fig. 2, 1856 Santa Maria (near Pebas?), Perú; Paris Mus.

One male and three females from Puerto Bermúdez, March 10–14, 1923.

Compared with a female from Chanchamayo (Field Mus. Nat. Hist.) and a male and female from Tulumayo, Junín (Amer. Mus. Nat. Hist.); eight specimens of *albigularis* from Río Inambari and La Pampa, Río Tavara, Perú, and Río Espírito Santo and Tres Arroyos, Bolivia (Amer. Mus. Nat. Hist.); a male, two females, and an unsexed specimen of *spirurus* from Surinam, and from Manáos and Conceição, Brazil (Field Mus. Nat. Hist.); two males and a female of *cuneatus* from Utinga, Pará, and Tury-assú, Maranhão, Brazil (Field Mus. Nat. Hist.); and sixty-four birds from Guatemala, Costa Rica, Venezuela, Colombia, and Ecuador (Field Mus. Nat. Hist., Amer. Mus. Nat. Hist., and Acad. Nat. Sci. Philad.).

The arrangement of the Central American and western South American material is somewhat doubtful in view of varying opinions as to the limits of racial distribution and the proper allocation of certain records. However, the Peruvian specimens from as far south as the Chanchamayo district appear to belong to *castelnaudi*. Birds from eastern Ecuador (Avila, Río Suno, Sumaco, Río Curaray, and San José) appear, with few exceptions, to agree with these Peruvian examples. On the other hand, specimens from Cerro Manglar Alto, Río del Oro, La Chonta, Esmeraldas, Santo Domingo, and Mindo,

Ecuador; all of Colombia; Rio Guachi, Venezuela; and Costa Rica are rather more heavily margined on the feathers of the throat and have the belly more distinctly streaked than the central Peruvian series, and are closer to the Guatemalan birds in these respects though the latter are even more strongly marked. On the basis of the material examined I recognize *pectoralis* from Guatemala, include the birds from Colombia, western Venezuela, and western Ecuador in *sublestus* (Peters, 1929), and refer east-Ecuadorian examples to *castelnaudii*.

Sittasomus griseicapillus amazonus Lafresnaye.

Sittasomus Amazonus LAFRESNAYE, Rev. Mag. Zool., (2), 2, p. 590, 1850 "Haut Amazone"; Paris Mus.

A male and a female from Huachipa, September 11 and 21, 1922.

Compared with a single female from Serra Grande, Rio Branco, Brazil; also with four specimens of *griseicapillus* from northern Argentina, eight skins of *reiseri* from northeastern Brazil, and ten skins of *sylviellus* from southern Brazil.

The Peruvian birds agree with the Rio Branco example.

Deconychura longicauda connectens Zimmer.

Deconychura longicauda connectens ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 17, No. 1, p. 8, 1929—Puerto Bermúdez, Perú; Field Mus. Nat. Hist.

A male (the type) from Puerto Bermúdez, March 17, 1923.

Compared with a male from Sabanilla and an unsexed specimen from Cutucuo, Ecuador (Amer. Mus. Nat. Hist.); also with various skins of *longicauda*, *pallida*, *minor*, and *typica* as noted in the original description.

Deconychura stictolaema secunda Hellmayr.

Deconychura secunda HELLMAYR, Bull. Brit. Orn. Club, 14, p. 51, 1904 Coca R., upper Río Napo, Ecuador; Tring Mus.

A female from Puerto Bermúdez, March 6, 1923.

Compared with a male from São Paulo de Olivença; also specimens of *stictolaema* and *clarior* from Brazil and French Guiana, as listed in my review of the genus (Field Mus. Nat. Hist. Publ., Zool. Ser., 17, No. 1, p. 18, 1929).

Pipra coronata exquisita Hellmayr.

Pipra exquisita HELLMAYR, Bull. Brit. Orn. Club, 15, p. 56, 1905—Chuchurras, Perú; Tring Mus.

Three males and one female from Puerto Bermúdez, March 9–18, 1923.

Compared with the type of *circumpicta* from Munichis, Yurimaguas, northern Perú.

These specimens are almost topotypical and, in addition, have been compared with a paratype of *exquisita* by its describer.

Pipra caeruleo-capilla Tschudi.

P(ipra) cacruleo-capilla TSCHUDI, Arch. Naturg., **10**, (1), p. 271, 1844—Perú; Mus. Neuchâtel.

One male and four females from Huachipa, September 12-October 2, 1922.

No other material of the species available for comparison.

One of the females has several distinctly bluish-tipped feathers among the scapulars and greater upper wing-coverts on the left side. All of the females are more decidedly yellowish green on the upper surface than a female of *P. coronata exquisita* and are duller and grayer below, besides having a smaller bill and shorter tail and wing.

Pipra chloromeros Tschudi.

P(ipra) chloromeros TSCHUDI, Arch. Naturg., **10**, (1), p. 271, 1844—Perú; Mus. Neuchâtel.

One young male from Vista Alegre, August 18, 1922.

Compared with a young male from Río Espírito Santo, Bolivia.

The Bolivian bird is a little duller than the Peruvian, and rather darker and browner, with the lores dark like the crown, whereas in the Vista Alegre specimen they are yellowish like the throat.

This and an adult male which escaped were the only examples of the species observed. They were found in the heavy tropical forest.

Pipra pipra microlopha Zimmer.

Pipra pipra microlopha ZIMMER, Proc. Biol. Soc. Wash., **42**, p. 85, 1929—Puerto Bermúdez, Perú; Field Mus. Nat. Hist.

One adult male (the type), four young males, and a female from Puerto Bermúdez, March 10–18, 1923.

Compared with three males from Orosa, Perú (Amer. Mus. Nat. Hist.), and a male from São Paulo de Olivença, Brazil (Carnegie Mus.); also with specimens of typical *pipra, anthracina, coracina, comata,* and intermediate examples as listed in the original description.

Details of plumages have been discussed in the original account.

Pipra pipra comata Berlepsch and Stolzmann.

Pipra comata BERLEPSCH and STOLZMANN, Ibis, 1894, p. 392—La Gloria, Perú; Warsaw Mus.

An adult and a young male from Vista Alegre, August 22 and 24, 1922; a male and a female from Huachipa, September 26 and 29; a male and a female from Chinchao, November 14 and 20.

Compared with various races of *pipra* as listed in the description of *P. p. microlopha* (Proc. Biol. Soc. Wash., 42, p. 85, 1929).

Tyranneutes stolzmanni (Hellmayr).

Pipra stolzmanni HELLMAYR, Ibis, 1906, p. 44—Marabitanas, n. w. Brazil; Vienna Mus.

A female from Puerto Bermúdez, March 10, 1923.

Compared with a male of *T. virescens* from British Guiana.

In addition to the curious structure of the tail mentioned by the describer, this specimen has the outer primary six millimeters shorter than the second, which is subequal to the third and fourth. In the male of *virescens* the outer primary is only two millimeters shorter than the second, which is subequal to the third but noticeably longer than the fourth, while the entire plumage, including remiges and rectrices, is stiffer than in the present species. Also, *virescens* appears duller in coloration and with much paler yellow on the belly, while the rictal bristles are much shorter than in *stolzmanni*.

Schiffornis turdinus amazonus (Sclater).

Heteropelma amazonum SCLATER, P. Z. S. London, 28, p. 466, 1860—Chamicuros, Perú; British Mus.

A female from Huachipa, October 4, 1922.

No material for comparison.

The bright cinnamomeous upper wing-coverts are very pronounced in this specimen.

Ampelion rubro-cristatus (D'Orbigny and Lafresnaye).

Ampelis rubro-cristata D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 39, 1837—Ayupaya and Yungas, Bolivia; types in Paris Mus.

Five males and one female from the mountains near Huánuco and Panao, 10,200–10,500 feet, May 31–July 4, 1922.

Compared with fifteen skins from Venezuela, Colombia, Ecuador, and northern Perú.

One male, evidently just reaching maturity, has slightly olivaceous-tinged belly and under wing-coverts, white lateral tips on the tertials, and a white wing bar at the tips of the greater wing-coverts.

Tschudi's first usage of *Ampelion* (Faun. Per., Aves, p. 21, 1845) fixes its type, by monotypy, as *Ampelis rufaxilla* Tschudi. This antedates p. 137 (1846) and also antedates *Heliochera* Filippi (1847). *Ampelion* auctorum is properly *Carpornis* Gray (1846).

These birds were not uncommon in the localities mentioned. Most of them were seen on exposed perches in the tops of trees at the edge of the woods or in more open situations.

Pipreola chlorolepidota Swainson.

Pipreola chlorolepidota SWAINSON, Anim. in Menag., p. 357, 1838—Perú = n Perú; (♀?); W. Hooker's coll., Cambridge (Eng.) Mus.?

Euchlornis sclateri CORNALIA, Contrib. Orn., 1852, p. 133, pl. 101—Perú, errore = Quijos Ecuador; Milan Mus.

Euchlornis sclateri pallidigula ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 60, 1924- Huachipa, upper Huallaga R., Perú; Field Mus. Nat. Hist.

The type of *pallidigula* and a second male from Huachipa, October 3 and September 15, 1922.

Compared with two males from the Río Suno, Ecuador (Amer. Mus. Nat. Hist.).

On examination of additional material in European museums, Dr. Hellmayr has concluded that the supposed differences of *pallidigula* are due to individual variation without racial significance, although Ecuadorian birds average larger (wing 74–78 mm. as against 72–75). This conclusion is confirmed by still other specimens which I have examined from northern Perú, in the American Museum of Natural History, although I have made no direct comparison of them with the type of *pallidigula*.

One of these specimens, a female from the Río Seco, west of Moyobamba (Amer. Mus. Nat. Hist., No. 234,954), agrees so perfectly with Swainson's description of *Pipreola chlorolepidota* that there is no remaining doubt that he had a specimen of the bird later named *Euchlornis sclateri* by Cornalia. This positive identification makes it necessary to alter both genus and species of this bird, since Swainson's names are oldest in both instances.

These birds were found at the upper limit of the tropical zone in the heavy forest. Although they were noted in the immediate neighborhood of the vagabond flocks of mixed species, which were

common in the forest at Huachipa, they took little part in the feverish activity of the other birds in the bands, but sat rather quietly high in the trees and made only occasional short and direct flights to other perches. On account of their inactive habits and their resemblance to the color of flower and leaf, they were not conspicuous in spite of their bright plumage.

Ampelioides tschudii (Gray).

Ampelis cincta TSCHUDI (nec KUHL, 1820), Arch. Naturg., 9, (1), p. 385, 1843— Pangoa, Perú; ♀; Berlin Mus.

C(otinga) Tschudii GRAY, Gen. Birds, 1, p. 279, Dec., 1846—new name for *Ampelis cincta* TSCHUDI.

A female from Huachipa, September 22, 1922.

Compared with a single skin from Bogotá.

This example was the only one of the species observed. It was found in the heavy tropical forest and was silent and shy.

Laniocera hypopyrra (Vieillot).

Ampelis hypopyrra VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 8, p. 164, 1817—"la Guyane" = Cayenne; Paris Mus.?

A skin from Puerto Bermúdez, March 14, 1923.

No material for comparison.

The specimen was sexed as a male but it is unspotted below and the pectoral tufts are yellow like the shoulder patch.

Lipaugus cineraceus (Vieillot).

Ampelis cincrea VIEILLOT (nec LATHAM, 1790), Nouv. Dict. Hist. Nat., nouv. éd., 8, p. 162, 1817—based on "Le Cotinga cendré" of LEVAILLANT, Cayenne.

A(mpelis) Cincracea VIEILLOT, Tabl. Enc. Méth., Orn., 2, livr. 91, p. 761, 1822—based on "Le Cotinga cendré" of LEVAILLANT; Cayenne.

A male from Puerto Bermúdez, March 10, 1923.

Compared with sixteen specimens from the Guianas and northern Brazil.

There are no differences worthy of note in the entire series.

Although only a single specimen was taken, numerous individuals were heard both at Puerto Bermúdez and on the trail from the Chanchamayo Valley to the Pichis River. Their remarkably clear, vibrant, and penetrating whistle, resembling the syllables "whee, whee-oo," with the last note exactly an octave below the first two, was one of the fascinating bird voices of the region. The example I shot had another curious call which sounded like the two ascending

notes of a hen's cackle, abrupt and sharp but not musical like the ordinary song. The birds were shy and retiring, and if one came suddenly into the open, it dashed back into seclusion even more rapidly. At variance with this usual habit, the example I obtained was sitting quietly on a twig in a rather open part of the forest where there was little undergrowth to conceal it.

Lipaugus cryptolophus cryptolophus (Sclater and Salvin).

Lathria cryptolopha SCLATER and SALVIN, P. Z. S. London, 1877, p. 522—Monji, e. Ecuador; British Mus

One female from Chinchao, November 19, 1922.

No material for comparison.

The species was found in the humid subtropical forest.

Pachyramphus viridis xanthogenys Salvadori and Festa.

Pachyrhamphus xanthogenys SALVADORI and FESTA, Boll. Mus. Zool. Torino, 13, No. 330, p. 1, 1898—Río Zamora, Ecuador; Turin Mus.

Two males from Vista Alegre, August 19 and 21, 1922.

Compared with a series of fifteen specimens of *P. v. viridis* from Brazil and Argentina.

In the Peruvian birds the belly is less buffy and more whitish; the black cap is longer; the gray nuchal band is wanting; the greater upper wing-coverts have narrower yellowish margins and more black interiorly; the yellow of the anterior under parts is more olivaceous; and the throat and sides of the face are yellow, not white or grayish white. One example of *viridis* from Juá, Iguatú, Ceará, has a decided yellowish suffusion on the throat and sides of the face and the nuchal band is narrow and anteriorly margined with olive green, showing a decided approach to the present form.

Pachyramphus polychopterus niger (Spix).

Pachyrhynchus niger SPIX, Av. Bras., 2, p. 33, pl. 45, fig. 1, 1825 no loc.; "Amazonas prope Fonteboa" suggested by BERLEPSCH and HARTERT, Novit. Zool., 9, p. 56, 1902; type lost.

A young male and an adult female from Huachipa, September 15, 1922; an adult male from the Río Colorado, Chanchamayo Valley, February 7, 1923.

Compared with a male from Yurimaguas; five skins of *spixii* from northern Argentina; three *polychopterus* from the states of Bahia, Piauhy, and Maranhão, Brazil; and four *tristis* from Bôa Vista, Brazil; Colón, Venezuela; and Tobago.

The young male from Huachipa is just passing into adult plumage and is as pale gray below and on the rump as *P. p. spixii*, with a blackish chin and a creamy white patch on the throat. The adult male from the Río Colorado agrees with one from Yurimaguas in its blackish coloration and the almost total absence of white on the tertials, scapulars, and inner margins of the remiges, while the young male has considerable white in all these places. Both adult males (Río Colorado and Yurimaguas) differ from a dark colored male of *P. p. tristis* from Bôa Vista, Brazil, in this same respect and in having the glossy steel blue of the top of the head continued farther posteriorly to the hind neck; the young male from Huachipa is not sufficiently advanced in molt to show the extent of this area.

Tityra semifasciata fortis Berlepsch and Stolzmann.

Tityra semifasciata fortis BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 369—La Gloria, Perú; Warsaw Mus.

One male, Huachipa, October 4, 1922.

Compared with a male from Cerro Hosane, Santa Cruz, Bolivia.

Although the Peruvian bird has the wing and tail noticeably shorter than the Bolivian example, the bill is a trifle longer.

Rupicola peruviana peruviana (Latham).

Pipra peruviana LATHAM, Ind. Orn., 2, p. 555, 1790—based on "Le Coq-de-Roche du Pérou" of BUFFON, Hist. Nat. Ois., 4, p. 437; Perú; Chanchamayo suggested by CHAPMAN, 1926.

A male, female, and young male from Huachipa, September 3-October 7, 1922; a female from Chinchao, November 4; a male from Hacienda Buena Vista, Río Chinchao, August 30 (collected by E. Heller).

Compared with three males and two females of *aequatorialis* from Colombia.

The adult Huachipa male has a faint shade of dusky visible beyond the ends of the tertials but the deep black of the basal portions is wholly concealed. The Buena Vista male has the exposed webs of the tertials wholly gray.

The "Tunqui" was found sparingly in the deep forest at Huachipa. Although there was said to be a cliff near-by where they occurred in numbers, the efforts of a guide to show me the place were unsuccessful. When seen, the birds usually were squatting horizontally on a limb of a tree, peering down at me. At a little distance the nasal crest looked surprisingly like a rooster's comb. The alarm note was an unmelodious squawk.

Agriornis montana insolens Sclater and Salvin.

Agriornis insolens SCLATER and SALVIN, P. Z. S. London, 1869, p. 153 Tinta, Dept. Cuzco, Perú; British Mus.

A female from the mountains near Huánuco, 12,200 feet, June 2, 1922.

Compared with seven additional skins from Junín, Cajamarca, Chachapoyas, and Macate, Perú; also with various specimens of *montana*, *maritima*, *intermedia*, and *leucura* from Argentina and various parts of Chile.

The Peruvian birds are fairly uniform and all are referable to the same race.

The species was found in the open country of the high temperate zone, perching on weeds and bushes or flying with strong wing-beats from place to place.

Agriornis andicola Sclater.

Agriornis andicola SCLATER (nec *Pepoaza andecola* D'ORBIGNY), P. Z. S. London, 28, p. 78, 1860—Pauza, Chimborazo, Ecuador; British Mus.

Dasycephala albicauda PHILIPPI and LANDBECK, Arch. Naturg., 29, (1), p. 132, 1863—one of the valleys of the cordilleras of Perú = Tacna; Chilean Nat. Mus., Santiago.

Agriornis pollens SCLATER, P. Z. S. London, 1869, p. 153 —new name for *Agriornis andicola* SCLATER.

A male from La Quinua, May 15, 1922.

Compared with a male from Putre, Tacna, a male from near Otuzco, and a female from Cajamarca.

Dr. Hellmayr has compared the La Quinua specimen with the type of *andicola* while Mr. K. P. Schmidt has compared the Putre specimen with the type of *albicauda*. While certain differences exist in size and in the buffy or grayish tone of coloration, these differences do not appear to be more than individual.

According to the recommendations under Article 36 of the International Rules of Zoological Nomenclature, *andicola* Sclater, 1860, is not preoccupied by *andecola* D'Orbigny, 1839. In a matter of personal preference I would like to consider these names (as also *Spermophilus* and *Spermophila*, *Anisognathus* and *Anisognatha*, *Parulus* and *Parula*, etc.) too nearly alike to warrant the retention of both but see no way to accomplish it without disregarding the International Rules. The American Ornithologists' Union Code is very clear and, to my mind, preferable in this case to the Inter-

national Rules, but it has not been adopted universally. The Committee of the British Ornithologists' Union has adopted even more drastic criteria for the rejection of similar names but those standards are not in general use. The International Rules furnish the only present road toward uniformity in zoological nomenclature and I believe that zoologists should adhere to them in spite of individual dislike of various parts. For this reason I have adopted the specific name used herewith.

Muscisaxicola rufivertex occipitalis Ridgway.

Muscisaxicola occipitalis RIDGWAY, Proc. U. S. Nat. Mus., **10**, p. 430, 1887—Lake Titicaca; U. S. Nat. Mus.

Muscisaxicola rufivertex ruficrissa CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., **1**, p. 342, 1916—Macate, Perú; ♀; Field Mus. Nat. Hist.

One female from La Quinua, May 13, 1922.

Compared with the type of *ruficrissa* Cory and with a female from Cajamarca; also with long series of the Chilean races, *rufivertex* and *pallidiceps*.

The Peruvian birds are easily separable by their darker coloration but are not subdivisible into two forms.

The species inhabits the high open plains.

Muscisaxicola alpina grisea Taczanowski.

Muscisaxicola grisea TACZANOWSKI, Orn. Pér., **2**, p. 213, 1884 Maraynioc, Junín, Perú; formerly Warsaw Mus., now lost.

Two males and a female from the mountains near Huánuco, 12,200 feet, June 20–30, 1922.

Compared with a male from Junín.

The Huánuco birds agree with the Junín specimen except for their slightly smaller size.

Muscisaxicola maculirostris maculirostris D'Orbigny and Lafresnaye.

M(uscisaxicola) maculirostris D'ORBIGNY and LAFRESNAYE, Mag. Zool., **7**, cl. 2, p. 66, 1837—La Paz, Bolivia; Paris Mus.

A female from Chosica, April 15, 1922; two males and a specimen of unknown sex from Matucana, April 28–May 4; a male from Santa Eulalia, April 24; a male from La Quinua, May 13.

Compared with sixteen specimens from various parts of Chile.

There is no localized variation to be found in the complete series. The vertical distribution of the race in Perú is shown by the present material to range from 3,500 to 12,000 feet or from arid tropical to arid temperate.

Muscisaxicola fluviatilis Sclater and Salvin.

Muscisaxicola fluviatilis SCLATER and SALVIN, P. Z. S. London, 1866, p. 187 lower Ucayali, Perú; British Mus.

A single female from Vista Alegre, October 13, 1922.

Compared with two males from Moyobamba and one male from San Ramón, Perú.

The bird from Vista Alegre was secured from a sandy bar in the Río Chinchao completely surrounded by steep, heavily forested hillsides.

Lessonia rufa oreas (Sclater and Salvin).

Centrites oreas SCLATER and SALVIN, P. Z. S. London, 1864, p. 154—Tinta, Dept. Cuzco, Perú; British Mus.

Two males and a female from Huánuco Viejo, December 20, 1922.

Compared with a young male from Lake Junín and a male and female from the Province of Antofogasta, Chile; also with a series of *rufa* from southern Chile and Argentina.

The two series are clearly marked.

The bird occurred in small, vagrant flocks on the high temperate plains.

Myiotheretes striaticollis striaticollis (Sclater).

Taenioptera striaticollis SCLATER, P. Z. S. London, 19 (for 1851), p. 198, pl. 42, June, 1853 - Ecuador; Edward Wilson collection, should be in Acad. Nat. Sci. Philadelphia.

Two males and two females from Chinchao, October 23–November 11, 1922; a female from Panao, July 15.

Compared with a female of *pallidus* from the Province of Tucumán, Argentina.

The Peruvian birds are clearly separable by their darker coloration.

At Chinchao this bird was found about the hacienda in exposed places. Locally it was given the general name of "Tapa-mosca."

Cnemarchus erythropygius (Sclater).

Taenioptera erythropygia SCLATER, P. Z. S. London, 19 (for 1851), p. 193, pl. 41, June, 1853 Ecuador; Edward Wilson collection, should be in Acad. Nat. Sci. Philadelphia.

Two males and two females from the mountains near Huánuco, 12,200 feet, June 19-24, 1922.

No material for comparison.

The few examples found were observed perching on the tops of bushes and low trees on the almost perpendicular sides of deep gullies where approach and pursuit were beset with difficulties. They were very alert and took wing at long range, often crossing the gullies or ascending to more precipitous heights, and when they were shot they fell into various almost inaccessible situations. An example, supposedly of this species, was lost at Matucana for this reason. In the air, the birds were light and graceful.

Ochthodiaeta fumigata fumigata (Boissonneau).

Tyrannula fumigata BOISSONNEAU, Rev. Zool., 13, p. 71, 1840 Santa Fé de Bogotá, Colombia; Mus. Comp. Zool.

Three males from Panao, July 10 and 11, 1922.

Compared with two Bogotá skins.

The Panao birds agree with the topotypes in most essential particulars, although the whitish superciliary stripe and subocular space apparently are more marked in the Peruvian birds and the general coloration is darker and more sooty brown. The differences may be due to post-mortem change in the old Bogotá skins.

These birds were heard to utter a soft and rapid "hew-hew-hew-hew"

Ochthoeca fumicolor brunneifrons Berlepsch and Stolzmann.

Ochthoeca oenanthoides brunneifrons BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 355—Maraynioc, Perú; Berlepsch coll., Frankfort Mus.

Two males and a female from the mountains near Huánuco, 10,500 and 12,200 feet, June 2–21, 1922.

Compared with a female from Molinopampa, one from near Balsas, and a skin of undetermined sex from Sanjas, Ecuador; also with a series of six skins of *fumicolor* from Colombia and western Venezuela.

The Peruvian skins are rather uniform among themselves but a trifle duller than the Ecuadorian bird.

Ochthoeca leucophrys leucometopa Sclater and Salvin.

Ochthoeca leucometopa SCLATER and SALVIN, P. Z. S. London, 1877, p. 19—"W. Peru, Prov. Cuzco"; type from Chihuata, above Arequipa (Chile); British Mus.

Three males from Matucana, April 30, 1922; a male from Cullcui, Marañón River, December 10.

Compared with a male and two females from Putre, Tacna, a male from Macate, and a male from Cajamarca, Perú; also with seven specimens of *tucumana* from the province of Tucumán, Argentina.

The Matucana birds are clearly referable to *leucometopa* of which the Tacna birds are nearly topotypical. The Cullcui specimen is badly worn and faded so that it is difficult to compare it satisfactorily, but it agrees with the Cajamarca specimen and apparently also the Macate skin (in poor condition) in being distinctly paler and browner than the more southern specimens. Whether or not this difference is significant can not be determined with the material at hand. The northern birds are not smaller than the southern and do not seem to be referable to *piurae*.

The subspecies is confined to the arid temperate zone of the western slopes and the Marañón Valley. Birds from the interior belong to a distinct form treated below.

Ochthoeca leucophrys interior subsp. nov.

A male and female from the mountains near Huánuco, 12,200 and 11,000 feet, June 23 and 12, 1922; two males, an adult female, and a young female from La Quinua, May 11–15.

Compared with a male and two females of *leucometopa* from Putre, Tacna, three males from Matucana, a male from Cullcui, Marañón River, a male from Macate, and a male from Cajamarca; also seven skins of *tucumana* from the province of Tucumán, Argentina.

The birds from the Huallaga Valley appear to be distinct and may be described as follows.

Type from the mountains near Huánuco, Peru. Altitude 12,200 feet. No. 59,660 Field Museum of Natural History. Adult male. Collected June 23, 1922, by J. T. Zimmer. Original number 2,442.

Diagnosis.—Similar to *O. l. leucometopa* but upper parts distinctly darker; wings and tail blacker; white of forehead averaging narrower; size averaging smaller.

Habitat.--Humid temperate zone of the central Andes of Perú, at least from the northern boundary of the Junín Plateau northward.

Description of type. Top of the head Chaetura Black, darker than the mantle which is between Chaetura Drab and Fuscous, becoming brighter on the rump where it is light Vandyke Brown; upper tail-coverts again more dusky. A narrow frontal band of white expands over the lores into a broad superciliary line which reaches to the nape, leaving the lores, a narrow line over the eye, and a postocular band dull black; a small white semilunar patch below the eye; auriculars blackish at tips but with considerable white subbasally. Chin and upper throat whitish, passing into ashy gray on breast, sides, and flanks, the latter with a slight brownish tinge; belly and under tail-coverts rather broadly white. Wings blackish brown; lesser and median upper coverts with faint cinnamomeous tips; greater series with pale terminal margins a little better defined; secondaries and tertials with whitish margins and tips, forming a white patch on the closed wing; under wing-coverts gray; inner margins of remiges dull whitish with a faint cinnamomeous tinge. Rectrices blackish with fine white tips on the outer three pairs; outermost with outer webs white except for a small subterminal dusky area. Bill and feet black. Wing, 76 mm.; tail, 72; exposed culmen, 11; culmen from base, 16; tarsus, 23¼.

Remarks.—The dark coloration of the present race is not surprising in view of the more humid conditions of the territory which it occupies. Probably the birds from the Junín Plateau southward to the Urubamba Valley will be found to be more closely related to this form than to *leucometopa*, but I have no material to determine the point.

Ochthoeca rufi-pectoralis centralis Hellmayr.

Ochthoeca rufipectoralis centralis HELLMAYR, Field Mus. Nat. Hist. Publ., Zool. Ser., 13, No. 5, p. 49, 1927--Panao, Perú; ♀; Field Mus. Nat. Hist.

Five females (including the type) from above Panao, July 3–13, 1922; two males and a specimen of undetermined sex from the mountains near Huánuco, 10,500 and 12,200 feet, June 2 and 3.

Compared with two females from Molinopampa; also with two males and a female of *tectricialis* from the Urubamba region, Perú (U. S. Nat. Mus.), and seven skins of *rufopectus* from Colombia and western Ecuador.

One of the males from near Huánuco has a very distinct second wing band occupying the tips of the median coverts, almost as broad as that on the greater coverts.

The two Molinopampa birds are equivocal. One is exactly matched by Ecuadorian skins of *rufopectus;* the other is less well marked. Probably these specimens are best referable to the Ecuadorian form.

These little flycatchers were found in the open, bushy thickets of the temperate zone, usually near the brooks and springs on the hillsides.

Ochthoeca oenanthoides polionota Sclater and Salvin.

Ochthoeca polionota SCLATER and SALVIN, P. Z. S. London, for 1869, p. 399, 1870—Pitumarca, Dept. Cuzco, Perú; British Mus.

One female and one doubtful female from La Quinua, May 9 and 13, 1922.

Compared with six skins of *oenanthoides,* three from Putre, Tacna, and three from the province of Tucumán, Argentina.

None of the specimens of *oenanthoides* are topotypical since the type locality is La Paz, Bolivia. The Tacna specimens are a little different from the Argentine examples, but in the absence of topotypes I can not say which series is the more typical. In any case the La Quinua birds are markedly distinct from all the others by their much darker coloration throughout, and evidently are referable to *polionota.*

Sayornis nigricans latirostris (Cabanis and Heine).

A(ulanax) latirostris CABANIS and HEINE, Mus. Hein., 2, p. 68, footn. **, 1859 Bolivia; Berlin Mus.

Sayornis cinereaca angustirostris BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 357 La Merced, Chanchamayo, Perú; Warsaw Mus.

Sayornis latirostris fumigatus TODD, Proc. Biol. Soc. Wash., 33, p. 72, 1920 - Don Diego, Santa Marta, Colombia; Carnegie Mus.

Two males and four females from Huánuco, July 20–August 10, 1922.

Compared with three males and three females from Argentina (Jujuy and Tucumán), two males from Ecuador (Puente de Chimbo), a male and female from Colombia (San Augustin and Andalucia), and a male from Venezuela (Colón, Táchira).

The Argentine birds appear to be slightly larger on average than the Peruvian and other specimens, and to have somewhat more

white on the belly and on the edges of the tertials and wing-coverts. However, they are in very fresh plumage while the others are decidedly worn, which may account for much of the apparent difference. Since the type locality is Bolivia and I have no Bolivian material, I am unable to say whether Argentine or Peruvian specimens are the more typical.

Colonia colonus niveiceps subsp. nov.

A male and four females from the Río Colorado, Chanchamayo Valley, January 27–February 25, 1923.

Compared with specimens of various subspecies as listed below.

Type from Poco Tambo, Perú. No. 44,259 Field Museum of Natural History. Adult male. Collected June 29, 1912, by W. H. Osgood and M. P. Anderson. Original number 3,062.

Diagnosis.—Similar to *C. c. colonus* but with forehead much more broadly white, including the crown in the males, and the rest of the top of the head paler than in the same sex of the typical form; central rectrices apparently longer. Similar also to *fuscicapillus* but with the differences in color even more pronounced.

Habitat.—Humid tropical zone of central and northern Perú.

Description of type.—Entirely silky black except for a white patch on the middle of the rump and a pale area on the top of the head; forehead, most of the lores, and the crown to the posterior border of the eyes, snowy white; posterior border of nape also white; intervening occipital and nuchal area faintly grayish with pure white tips, hardly differing from the forehead; crown slightly crested. Median rectrices long and filiform as in the other races. Wing, 85 mm.; tail, except for median plumes, 65; median plumes, 196; exposed culmen, 8; culmen from base, 12; tarsus, 16.

Remarks.—Four other males agree with the type except that the white tips on the occipital and nuchal region are less pronounced, leaving the area generally slightly more in contrast with the white crown and forehead though still distinctly nearer white than in *colonus;* pure white frontal area as broad as in the type. Wing, 84–85 mm.; tail, except for central plumes, 63–65; central plumes, 180–202; exposed culmen, 8¾–10; culmen from base, 14–14½; tarsus, 15–16.

Females similar to the males but with rectricial plumes shorter and top of head darker, though the latter is distinctly paler and with broader frontal band than in *colonus* or *fuscicapillus;* white of head

restricted to a broad band which is pure white for a width of 6 or 7 mm. in median line and sometimes ashy white behind this to the posterior border of the eyes; the frontal area involves the lores and is continued broadly over the eyes to above the auriculars; remainder of crown, occiput, and nape, except as indicated, Pale Mouse Gray or Pale Neutral Gray with the dusky centers sometimes concealed, sometimes more or less exposed. Wing, 75–81 mm.; tail, except for central plumes, (52?)58–65; central plumes, 121–151; exposed culmen, 8–10; culmen from base, 12–14; tarsus, 15½–16.

Specimens examined:

C. c. colonus—Brazil: Rio, Therezopolis 1 ♂ 1 ♀; Rio de las Velhas 1 ♂. Argentina: Misiones, Iguazú 1 ♂ 1 ♀; Eldorado 1 ♂.

C. c. niveiceps—Perú: Poco Tambo 2 ♂ (incl. type); Moyobamba 1 ♂; San Ramón 1 ♂ 1 ♀; Río Colorado 1 ♂ 4 ♀.

C. c. fuscicapillus—Colombia: Bogotá 1 ♀ ?; Buena Vista 2 ♂[1]; Villavicencio 1 ♂ 1 ♀[1]. Ecuador: Río Suno 3 ♂ 3 ♀[1]; San José 1 ♂ 1 ♀[1].

C. c. poecilonota—British Guiana: Mazaruni River 1 ♀; Conwarook 2 ♀.

C. c. leuconota—Costa Rica: Limon 1 ♂ 3 ♀; Guayabo 1 ♂. Panamá: Colón 2?. Colombia: Quibdo 1 ♀; Cerro Munchique 1 ♂ 1 ♀.

Pyrocephalus rubinus obscurus Gould.

Pyrocephalus obscurus GOULD in DARWIN, Zool. Beagle, 3, pt. 9, p. 45, 1839—Lima, Perú (=melanistic phase); British Mus.

Myiarchus atropurpureus TSCHUDI, Arch. Naturg., 10, (1), p. 273, 1844 Perú (=melanistic phase); Mus. Neuchâtel.

Pyrocephalus rubineus heterurus BERLEPSCH and STOLZMANN, P. Z. S. London, 1892, p. 381 Lima; Warsaw Mus.

A young male and a female of the melanistic phase from Vitarte, April 26, 1922; also a normal male from Vitarte, April 26, a male and two females from Chosica, April 15–18, and four males and two females from Santa Eulalia, April 19.

Compared with twenty additional skins of *obscurus* from Pacasmayo, Trujillo, Menucucho, Cajamarca, and Hacienda Limón, Perú; Chacalluta, Tacna, "Chile" (now Perú); Milagro, Ecuador, and Cali, Caldas, Medellin, and Bogotá, Colombia; also with a male of *major*

[1]Specimens in American Museum of Natural History, New York.

from Huiro, Perú, a series of *saturatus* from northeastern Brazil, British Guiana, and Venezuela, and a series of *rubinus* from southern Brazil, Argentina, Bolivia, and Yurimaguas, Perú.

I am inclined to agree with Hellmayr that the dark colored birds from the coast of southern Perú are melanic variants of the present race, although with only two specimens it is impossible to make a thorough comparison. I found no difference in habits of the two in the field and shot a normal male and a dark female from the same tree at Vitarte where they were apparently in company, having flown to the tree together. One Santa Eulalia female is nearly as dark above as the melanistic female and with the same reddish suffusion throughout the gray of the back; below it is more broadly streaked than the other females and generally darker in coloration, suggesting a tendency toward melanism which has not progressed far.

The Tacna birds are a little paler than the Rimac Valley specimens. One male has a wing of 84 mm., another has 80, and the third 78, while the normal Vitarte male also has a wing of 80, and a Santa Eulalia male 78; these birds measure as large as, or larger than, the measurements given for *P. r. major* (wing 78-82; Hellmayr, 1927), which may be unworthy of recognition.

This pretty flycatcher was found in the more or less open country, finding its perches with equal readiness on the tops of weeds and bushes and in the scattered trees of the valley floor.

Muscigralla brevicauda D'Orbigny and Lafresnaye.

Muscigralla brevicauda D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 61, 1837—Tacna, Perú; Paris Mus.

Three males and one female from Vitarte, April 26, 1922.

Compared with two males and two females from Pacasmayo, and two males and a female from Trujillo.

No differences are apparent in the series.

This curious little bird inhabited the grasses and weeds in the seclusion of the cotton fields and at the edges of the roads, where it ran and sought concealment at slight provocation. Occasionally it took wing for short distances, rising only enough to clear the surrounding vegetation.

Tyrannus melancholicus melancholicus Vieillot.

Tyrannus melancholicus VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 35, p. 48, 1819—based on AZARA's No. 198; Paraguay.

Muscicapa furcata SPIX, Av. Bras., 2, p. 15, pl. 19, 1825—Brazil; Munich Mus.
Tyrannus roseus LESSON, Traité d'Orn., p. 382, 1831—no loc. =s. Brazil; Paris Mus.

A male from Chosica, April 15, 1922; a female from Santa Eulalia, April 19; three males and three females from Huánuco, May 27–August 9; a female from Vista Alegre, August 17; a male and a female from Huachipa, October 3 and 5; and two males from Chinchao, October 27 and November 12.

Compared with skins from San Ramón, Hacienda Limón, Menucucho, Chachapoyas, Rioja, Moyobamba, and Yurimaguas, Perú, and a large series from various localities in northern Argentina, southern Brazil, Colombia, and northwestern Venezuela; also with seventy-four skins of *despotes* from northern Brazil, British Guiana, parts of Venezuela, and Curaçao, Aruba, and Tobago islands.

A common bird in the open country of the tropical and subtropical zones.

Legatus leucophaius nevagans Chubb.

Legatus variegatus nevagans CHUBB, Bull. Brit. Orn. Club, **40**, p. 43, 1919—Costa Rica, Panamá, and Colombia; British Mus.

A male and female from Vista Alegre, August 27 and October 11, 1922.

Compared with eighteen skins from Perú (Yurimaguas), Bolivia, Argentina, Brazil, British Guiana, Colombia, Panamá, Costa Rica, and Nicaragua; also with a single skin of *variegatus* from Guatemala.

The birds from Nicaragua to Colombia (Bogotá) are recognizably distinct from the Guianan, Brazilian, Argentine, and Bolivian skins by their brighter yellow under parts, with a noticeable suffusion of yellow on the breast. The Vista Alegre birds seem to be a little more greenish in tone than the northern (western) specimens but belong better with them than with the eastern birds. The Yurimaguas specimen is not so clearly marked but is in molt and is difficult to compare. If this western form is really separable, as it appears in the material before me, it must bear the name *nevagans*. A larger series may show the Peruvian birds to be still further distinct but I am unable to demonstrate it at present.

Chubb's *Legatus albicollis successor* is a strict synonym of *leucophaius*. If the Paraguayan bird should prove to be distinct (as does not seem probable on comparison of Argentine, Brazilian, and Guianan specimens) it has a name available in Vieillot's *albicollis*.

Myiodynastes luteiventris Sclater.

Myiodynastes luteiventris SCLATER, P. Z. S. London, 27, p. 42, 1859—Orizaba, Mexico; British Mus.

Myiodynastes luteiventris vicinior CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 342, 1916 Yurimaguas, Perú; Field Mus. Nat. Hist.

A male and female from Río Colorado, Chanchamayo Valley, January 30 and February 7, 1923.

Compared with the type of *vicinior* from Yurimaguas, a male from Tres Arroyas, Bolivia, and thirty-two skins from Arizona, Mexico, Guatemala, and Costa Rica.

The Bolivian bird is inseparable from most of the Central American specimens. The Río Colorado examples are darker and greener on the back than most of the northern specimens but an occasional individual of the latter is hardly different from these two, indicating that the variation is probably individual. The type of *vicinior* is a young bird.

There is a little doubt about the type and type locality of this species. Bonaparte used the name without description for a species found in the material collected in Nicaragua by Delattre. Sclater, in 1856, referred a specimen from Córdoba, Vera Cruz (collected by Sallé) to *audax* (=*maculatus*) but said it was a little different from that species in particulars which he described. Later, in 1859, Sclater, having obtained new material, described *luteiventris* in detail with synonymic reference to his so-called *audax* of 1856. He gave a general account of distribution without a definite type locality and added "Mus. P.L.S." The only specimens in his own collection were two from Orizaba (ex Botteri), now in the British Museum. Either Sallé's Córdoba skin, the present whereabouts of which is not known, is the type by inference or else the Orizaba skins are co-types, and since these latter are still in existence I believe it is best to consider them as the actual specimens on which the full description of *luteiventris* was based.

Myiodynastes solitarius (Vieillot).

Tyrannus solitarius VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 35, p. 88, 1819—based on AZARA, No. 196; Paraguay; no type specimen.

A male and female from Río Colorado, Chanchamayo Valley, January 30 and February 16, 1923; a female from Vista Alegre, August 18, 1922.

Compared with five skins from Uruguay, two from Argentina, two from Bolivia, two from British Guiana, and thirteen from eastern Brazil.

The Peruvian birds seem to be inseparable from the rest of the series.

Myiodynastes chrysocephalus chrysocephalus (Tschudi).

Sc(aphorhynchus) chrysocephalus TSCHUDI, Arch. Naturg., **10**, (1), p. 272, 1844—Perú; Valley of Chanchamayo suggested by Hellmayr, 1927; Mus. Neuchâtel.

A male from Chinchao, November 16, 1922.

Compared with a male and female of *minor* from La Frijolero and Salento, Colombia; a male and female of *intermedius* from Mérida and Táchira, Venezuela; and three males and four females of *hemichrysus* from Coliblanco, Costa Rica.

The Peruvian bird apparently is referable to typical *chrysocephalus* of which I have no topotypical material.

Myiozetetes similis connivens Berlepsch and Stolzmann.

Myiozetetes similis connivens BERLEPSCH and STOLZMANN, Ornis, **13**, p. 57, 1906—Santa Ana, Urubamba Valley, Perú; Warsaw Mus.

Two males from Vista Alegre, August 20 and 22, 1922; a male and two females from Chinchao, October 30–November 16.

Compared with six males and two females from Moyobamba; also with six specimens of *similis* from Arara, Codó, Rosario, Serra Baturité, and Victoria, Brazil, and Iguazú, Misiones, Argentina; and with twenty-six skins of *columbianus* from Panamá, Colombia, and Venezuela.

If *connivens* is distinct from *similis*, the above Peruvian birds are referable to it, but it is a very poor subspecies. The authors themselves admitted that some of the characters were not constant and that the race was of doubtful value. The present series bears out that statement. Some of the skins are inseparable from Brazilian ones and even the most strongly marked are not very different, but since there is a slight average difference in coloration and a name is already provided for the Peruvian birds, the name may be preserved. As shown in the material at hand, *connivens* has a trifle less rufescence on the edges of the remiges and sometimes has a little stronger tinge of yellow on throat and superciliaries, while the back averages a little greener. In coloration it is intermediate between *similis* and the smaller *columbianus*.

The ordinary flight of this species is noiseless but, on occasion, the bird makes use of a sharp and vibrant flutter of its wings, given in short bursts, which is audible at some little distance.

One of the birds was kept as a pet at Vista Alegre and was allowed perfect freedom. Several times when I was collecting in rather close proximity to the hacienda, I nearly shot this bird by mistake for a wild one but was prevented by its friendly and knowing actions which made me realize my mistake in time. Locally the species was known as "Shipilico," in fancied imitation of its soft, chattering note.

Pitangus lictor subspecies.

Lanius lictor LICHTENSTEIN, Verz. Doubl. Berliner Mus., p. 49, 1823—Pará; Berlin Mus.

One female from San Enrique, lower Río Ucayali, March 25, 1923.

Compared with a male from São Luis, Maranhão, Brazil; two females from Descalvados, Matto Grosso; a male from Georgetown, British Guiana; a probable female from Demerara; a female and two males from La Ceiba, Maracay, and Río Araure, Venezuela; and a female and two males from Barro Colorado Island and Colón, Panamá, and Turbo, Atrata River, Colombia.

The arrangement of this material is very puzzling. The east-Brazilian, Guianan, and Venezuelan skins appear to represent typical *lictor* although the Demerara bird is small (wing 83 mm. as against 86-92 for the males and 87 for the female). All agree in having a relatively pale back. The Matto Grosso females are equally large or larger (wing 89–90 mm.) but have the back noticeably darker. The Peruvian bird has the back the darkest of all but is small (wing 83 mm.). The north-Colombian and Panamán examples are quite small (wing of male 77 mm., of the females 82-83), but match the Matto Grosso birds in the color of the back. These three northern birds should be referable to *P. l. panamensis*.

Without more material to determine whether *panamensis* may range southward and meet *lictor* in western Brazil or whether it is restricted to the extreme northwestern part of the South American continent and southern Central America, I can not place this single Peruvian skin satisfactorily.

Myiarchus cephalotes cephalotes Taczanowski.

Myiarchus cephalotes TACZANOWSKI, P. Z. S. London, 1879, p. 671—Tambillo, Perú; formerly Warsaw Mus., now lost.

A male from Vista Alegre, August 22, 1922; four males and two females from Chinchao, October 23–November 20.

Compared with a male and a female from Uchco and Molinopampa, Perú, and a female from La Palma, Colombia; also with a specimen of *caribbaeus* from Maracay, Venezuela.

The Peruvian birds are not subdivisible though varying a certain amount among themselves in the shading of the crown and the brightness of the white stripe on the outer web of the outermost rectrices. The Colombian skin approaches *caribbaeus* in the amount of green in the olive of the back and in the somewhat tawny edges on the feathers of the crown, but in the wide bill and lesser amount of white on the outermost rectrices it agrees with the Peruvian birds.

Myiarchus tuberculifer tuberculifer (D'Orbigny and Lafresnaye).

T(yrannus) tuberculifer D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 43, 1837—Guarayos, Bolivia; Paris Mus.

Myiarchus gracilirostris PELZELN, Orn. Bras., 2, pp. 117, 183, 1868—Villa Maria (=San Luis de Caceres), Matto Grosso, Brazil; Vienna Mus.

Myiarchus coalei RIDGWAY, Proc. U. S. Nat. Mus., 9, p. 520, 1887—Orinoco Valley; U. S. Nat. Mus.

A male from the Río Colorado, Chanchamayo Valley, January 31, 1923.

Compared with three males and a female from Buena Vista, Santa Cruz, Bolivia; Serra Grande, Rio Branco, Brazil; and Mérida and Encontrados, Venezuela; also with thirteen skins of *atriceps* from central and northern Perú (cf. account of *atriceps*).

The Río Colorado specimen agrees with the other skins of this subspecies in the brownish cap and paler yellow under parts. This race, apparently, is confined to the tropical zone.

A specimen from Moyobamba is referred here tentatively. It is not fully mature and the head is very pale with a few new feathers appearing on the crown. These new plumes are darker than the old feathers but are not black enough for *atriceps*.

Myiarchus tuberculifer atriceps Cabanis.

Myiarchus atriceps CABANIS, Journ. Orn., 31, p. 215, 1883—San Xavier, Tucumán, Argentina; Berlin Mus.

Four males and four females from Huánuco, July 20–August 10, 1922; a female from Panao, July 10; a male from Huachipa, October 4; and a female from Chinchao, November 11.

Compared with two males from Hacienda Llagueda and Hacienda Limón, northern Perú; also with five skins of *tuberculifer* from the Chanchamayo Valley, Perú, and from various localities in Bolivia, Brazil, and Venezuela (cf. account of *tuberculifer*).

This race is distinguishable from *tuberculifer* by the long and distinctly black crest which shows a greenish sheen in certain lights, and also by the rather deeper yellow of the under parts. It inhabits higher elevations than *tuberculifer* of which it appears to be a zonal, as well as geographical, representative. The specimen from Huachipa (4,600 feet) should be assigned to the subtropical zone which meets the tropical zone at this point. The other localities are subtropical to lower temperate. The bird's note was a soft "see-ur."

Nuttallornis mesoleucus (Lichtenstein).

Muscicapa mesoleuca LICHTENSTEIN, Preis-Verz. Mexic. Vogel, p. 2, 1830 Mexico = Oaxaca; Berlin Mus.

A male from Río Colorado, Chanchamayo Valley, January 26, 1923.

Compared with a series of twenty-seven skins from central and western United States, and Costa Rica.

The Peruvian bird is badly worn and beginning its prenuptial molt. It has a wing length of only 99¼ mm., and tail length of 63 mm. and is therefore referable to typical *mesoleucus* whether or not the western form *majorinus* is recognized.

Myiochanes virens (Linnaeus).

Muscicapa virens LINNAEUS, Syst. Nat., 12th ed., 1, p. 327, 1766- based on *Muscicapa carolinensis cinerea* BRISSON, Orn., 2, p. 368, 1760; Carolina.

A female from Vista Alegre, October 11, 1922, and two females from the Río Colorado, Chanchamayo, January 26 and February 7, 1923.

Compared with large series of North and Central American examples of *virens* and *richardsonii*.

The two Río Colorado birds are in nearly completed molt and are unquestionably referable to *virens;* the Vista Alegre bird is not so easily identifiable. It is in exceedingly worn and faded plumage, in the very beginning of molt, and appears to compare well with *richardsonii* but it is almost exactly matched by a female of *virens* from Beaver Dam, Wisconsin, taken on September 10, 1903, which is also in worn autumnal plumage. Furthermore, there are on the

crown a few new feathers of a blackish color much too dark for any *richardsonii* that I have at hand, all of which points to the conclusion that this bird also is *virens*.

Myiochanes cinereus punensis (Lawrence).

Contopus punensis LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., 9, p. 236, 1869 Puna Island, Ecuador; U. S. Nat. Mus.

A male and female from Santa Eulalia, April 20 and 23, 1922.

Compared with four males and a female from Hacienda Limón, and two males from Hacienda Llagueda, Perú; also with six skins of *cinereus* from São Paulo, Brazil, and Misiones, Argentina; the type and four other skins of *pallescens* from Bahia, Maranhão, and Matto Grosso, Brazil, and Tucumán, Argentina; and six examples of *bogotensis* from Caracas and Aragua, Venezuela.

Peruvian birds have a much larger bill than any of the other races mentioned.

Empidonax traillii traillii (Audubon).

Muscicapa traillii AUDUBON, Birds Amer., folio, 1, pl. 45, 1828 (Orn. Biog., 1, p. 236, 1831)—woods along Arkansas River, Arkansas; U. S. Nat. Mus.

Empidonax traillii alnorum BREWSTER, Auk, 12, p. 161, 1895—Upton, Maine; Mus. Comp. Zool.

A female from Vista Alegre, October 11, 1922.

Compared with numerous specimens of *traillii* and *brewsteri* from North and Central America.

The Peruvian bird is in worn plumage but appears to agree best with the eastern race.

Empidonax euleri argentinus (Cabanis).

Empidochanes argentinus CABANIS, Journ. Orn., 16, p. 196, 1868—Buenos Aires, Argentina; Berlin Mus.

A female from Vista Alegre, August 27, 1922.

Compared with a male of *argentinus* from Concepción, Tucumán; also with a male and female of *euleri* from Quebrado de los Cuervos, Uruguay, a female and two unsexed birds from Eldorado, Misiones, Argentina, a male from Rio de las Velhas, Minas Geraës, Brazil, and a female from Yurimaguas, Perú.

The Vista Alegre specimen has been compared by Dr. Hellmayr with the type of *argentinus* and found to agree closely. The Tucumán example has the white of the throat modified to grayish and

that of the belly a little restricted (the dark flanks being broader), but it lacks the pronounced yellowish tone of the under parts and is closer to *argentinus* than to *eulen*.

The Yurimaguas bird is much closer to *eulen* than to *argentinus;* in fact it is even more yellowish below and richer brown above, especially on the top of the head, than any of our series of the typical form. Possibly a series from the region of Yurimaguas would show a recognizable distinctness which would aid in solving the problem of what is otherwise a very puzzling distribution.

Cnemotriccus poecilurus peruanus (Berlepsch and Stolzmann).

Empidochanes poecilurus peruanus BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 366 - Garita del Sol, Perú; Warsaw Mus.

Four males and four females from Chinchao, October 22 November 10, 1922.

No material for comparison.

Judging by descriptions, this race can not be very well marked; most of my specimens have more than a mere subapical spot of dusky on the outermost rectrix and at least one example has the dusky area continued well toward the base beneath the under tail-coverts. Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 522, 1926) has been unable to recognize *peruanus*, though Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., 13, pt. 5, p. 226, 1927) has admitted it. Quite probably it is not entitled to recognition but I hesitate to submerge it until I have seen more material.

The bird was common about the coca plantation at Chinchao. In life the eye varied from orange to crimson.

Mitrephanes phaeocercus olivaceus Berlepsch and Stolzmann.

Mitrephanes olivaceus BERLEPSCH and STOLZMANN, Ibis, (6), 6, p. 391, 1894 Garita del Sol, Vitoc, Perú; Warsaw Mus.

Two males and an immature bird of undetermined sex from Huachipa, September 11–October 7, 1922.

Compared with a young female from Uchco; also with eight males and one female of *aurantiiventris* from Costa Rica and a male of *nicaraguae* from the type locality.

The adult Peruvian birds are much greener throughout than the other forms examined, but the young birds are much buffier, showing the probability that the pale northern forms are the most ancient. The young bird from Huachipa, collected September 15, may be described as follows.

Sides of head Tawny Olive; forehead darker; middle of crown with a blackish crest tipped with Tawny Olive; back pale, dull brown tipped with Cinnamon-Buff (a few greenish feathers of adult plumage appearing); rump Pinkish Buff; upper tail-coverts dusky with buffy tips giving a spotted appearance. Breast Tawny Olive; throat paler; belly much paler, Pinkish Buff. Upper wing-coverts rather broadly tipped with cinnamomeous buff; inner secondaries edged with greenish; tertials broadly edged with buff; all remiges narrowly tipped with pale buff. Rectrices obtusely pointed, edged with Dark Olive on outer margins and tipped with buff.

Myiobius barbatus amazonicus Todd.

Myiobius barbatus amazonicus TODD, Proc. Biol. Soc. Wash., 38, p. 96, 1925—Hyutanahán, Rio Purús, Brazil; Carnegie Mus.

A female from Puerto Bermúdez, March 19, 1923.

Compared with three skins of *barbatus* from Saint Laurent du Maroni, French Guiana, and the Caramang River and Mazaruni River, British Guiana; and with one female and two males of *semiflavus* from El Tambor, Colombia (Carnegie Mus.).

The Peruvian bird appears to be referable to the west-Brazilian subspecies.

Myiobius villosus peruvianus Todd.

Myiobius villosus peruvianus TODD, Proc. Biol. Soc. Wash., 35, p. 32, 1922—Río Tavara, southeastern Perú; Carnegie Mus.

A male and two females (one of the latter immature) from Huachipa, September 22 and October 2, 1922.

No material for comparison.

The specimens agree with Todd's description. Chapman refers east-Ecuadorian birds to the same form.

The rictal bristles of this species are as long as, or longer than, the bill and form a veritable basket surrounding the mouth—useful, no doubt, in the birds' activities of catching small insects on the wing. The specimens were taken along the trails and in the more open portions of the heavy tropical forest.

Myiobius atricaudus portovelae Chapman.

Myiobius atricaudus portovelae CHAPMAN, Amer. Mus. Novit., 138, p. 3, 1924—Porto Velo, Ecuador; Amer. Mus. Nat. Hist.

A male from the Río Colorado, Chanchamayo Valley, February 25, 1923.

Compared with a male from Pambilar and a female from Puente de Chimbo, Ecuador, and two females (one immature) from Moyobamba, Perú; also with the type and five paratypes of *snethlagei* from northeastern Brazil.

The Puente de Chimbo bird is much brighter colored above and below than any of the others; the Peruvian and Pambilar examples are fairly well matched.

Pyrrhomyias cinnamomea cinnamomea (D'Orbigny and Lafresnaye).

M(uscipeta) cinnamomea D'ORBIGNY and LAFRESNAYE, Mag Zool., 7, cl. 2, p. 49, 1837—Yungas, Bolivia, Paris Mus.

A male and female from Vista Alegre, August 21 and 28, 1922; a female from Huachipa, September 21.

Compared with three skins of *pyrrhopterus* from Colombia and a female from near Balsas, northern Perú.

The Balsas bird agrees better with the Colombian skins than with the other Peruvian birds in the somewhat browner back, paler rump patch, and more extensive rufous band on the wing, but it is not fully adult and therefore not entirely comparable. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 517, 1926) states that Ecuadorian skins are not always typical of *pyrrhoptera*. Apparently transition to *cinnamomea* takes place over a wide area which includes the more northern parts of Perú. Huachipa and Vista Alegre birds are typical *cinnamomea*.

Myiophobus rufescens (Salvadori).

Myiobius rufescens SALVADORI, Atti Soc. Ital. Sci. Nat., 7, p. 152, 1864 "Brazil," errore; I suggest Lima, Perú; Turin Mus.

Four males and one female from Santa Eulalia, April 19–23, 1922; a female from Chosica, April 16.

Compared with a male from Callao, a male from Trujillo, and a male and an unsexed example from Menucucho; also with a series of *M. fasciatus crypterythrus* from Hacienda Limón, near Balsas, Perú, and Puente de Chimbo, western Ecuador, and one skin of *M. f. saturatus* from Moyobamba.

One of the Santa Eulalia males and the unsexed Menucucho bird have the crown patch bright lemon yellow, and the Chosica female has the area dull and pale rufescent with a touch of yellow. The other adult examples have the crown patch decidedly rufescent.

The same variation occurs in *M. fasciatus crypterythrus* and may indicate close relationship with the present form. Most of the skins in the present series of *rufescens* show traces of obsolete dusky streaks on the breast and sides and some specimens of *crypterythrus* have a varying amount of rufescence on the bend of the wing and the bands on the upper wing-coverts, in which respects the two series show a slight approach. The general coloration of the upper surface is more similar than that of the under parts and the details of structure in the two forms can be matched rather closely. A careful study of adequate material may show that *rufescens* is entitled to no more than subspecific rank. There is no conflict in distribution.

Hirundinea ferruginea sclateri Reinhardt.

H(irundinea) Sclateri REINHARDT, Vidensk. Medd. Naturhist. Foren., 1870, p. 377, in text—Perú; Copenhagen Mus.

A male and a female from Chinchao, November 17, 1922.

Compared with two males and four females of *bellicosa* from Therezopolis, Rio; Quixada, Ceará; Tranqueira and Inhuma, Maranhão; and Rio de las Velhas, Brazil; also with a female of *pallidior* from Catamarca, Argentina.

The male from Chinchao has rufescent tips on the upper wing-coverts, lower back, and rump. A female of *bellicosa* from Therezopolis and another from Inhuma have dusky subterminal spots on the upper tail-coverts, and other skins of *bellicosa* and one of *pallidior* show traces of the same marking. The rufous band on the central rectrices crosses both webs in *bellicosa* and *pallidior* but is sometimes entirely concealed beneath the upper coverts, while in *sclateri* the band crosses only the inner web but reappears at the outer margin of the outer web and is not always entirely concealed by the coverts. The other differences are merely those of relative size, greater or lesser extent of certain patches of color, and the depth of hue, all differences of degree. Consequently I consider these forms as subspecies of the same group.

The Chinchao birds were found on the rather open hillsides in the arid subtropical zone. Their flight was graceful and direct when passing from perch to perch but swallow-like when in pursuit of food.

Platyrinchus flavigularis (Sclater).

Platyrhynchus flavigularis SCLATER, P. Z. S. London, 1861, p. 382—Bogotá, Colombia; British Mus.

Two males from Huachipa, September 26 and October 1, 1922. Compared with four females from Colombia (La Candela and Bogotá).

The Peruvian birds are slightly richer in color, the greater upper wing-coverts are tipped with cinnamomeous (barely indicated in one Colombian skin), and the first (outermost) primary is two millimeters longer than the sixth instead of about equal to it. Since the Peruvian birds are males and the Colombian are females (possibly excepting one which is not sexed and is in molt), it is impossible to say if the differences are sexual, racial, or (in part) ontogenetic.

This species combines the characters of *Platyrinchus*, *Platytriccus*, and *Placostomus* in such a way as to break down the generic distinctness of these groups. All three agree in their general characters of short tail, dwarfed size, and broad flat bill which thus appear to be of greater taxonomic value as generic characters than are the more variable features which have been used for the separation of the three supposed groups.

The birds were found in the heavy forest though in the lesser growth near the ground, and were very quiet in habits.

Platyrinchus mystaceus zamorae (Chapman).

Platytriccus albogularis zamorae CHAPMAN, Amer. Mus. Novit., **118**, p. 5, 1924—Zamora, e. Ecuador; Amer. Mus. Nat. Hist.

A male from Huachipa, October 6, 1922; a female (immature) from Chinchao, November 16.

Compared with a female of *albogularis* from Puente de Chimbo, western Ecuador, a male of *neglectus* from Panamá, and a series of typical *mystaceus* from the states of Minas Geraës, São Paulo, and Maranhão, Brazil, and Misiones, Argentina.

The Peruvian male is very close to the specimen of *neglectus* in most details but is perhaps a trifle more brownish olive above. The female is immature and has the mantle still in juvenal plumage and strongly suffused with brown, being useless for comparison.

This little flycatcher inhabited the seclusion of second-growth thickets and groves where it was very inconspicuous.

Platyrinchus coronatus coronatus (Sclater).

Platyrhynchus coronatus SCLATER, P. Z. S. London, **26**, p. 71, 1858—Río Napo, Ecuador; British Mus.

A male from Puerto Bermúdez, March 17, 1923.

Compared with six examples of *superciliaris* from Costa Rica, Panamá, and Nicaragua.

The Peruvian bird is much duller and browner than the Central American specimens. I have not seen topotypes of *coronatus*.

Rhynchocyclus fulvipectus (Sclater).

Cyclorhynchus fulvipectus SCLATER, P. Z. S. London, 28, p. 92, 1860—Nanegal, Ecuador; British Mus.

A female from Chinchao, November 14, 1922.

Compared with a male from Uchco, Perú.

No topotypical material is available for comparison. There is no indication of variation in the Chinchao and Uchco birds.

Rhynchocyclus olivaceus guianensis McConnell.

Rhynchocyclus olivaceus guianensis MCCONNELL, Bull. Brit. Orn. Club, 27, p. 106, 1911—Abary River, British Guiana; British Mus.

Craspedoprion intermedius TODD, Ann. Car. Mus., 8, p. 207, 1912—Río Yuruán, Venezuela; Carnegie Mus.

A male from Puerto Bermúdez, March 19, 1923.

Compared with a male from Tury-assú, Maranhão, Brazil; also with a female of *flavus* from Orope, Venezuela, a female of *bardus* from Panamá, and the type of *olivaceus* (in the Upsala Museum), probably from near Rio de Janeiro.

The material is totally inadequate to permit a satisfactory study of this species. My bird is exactly intermediate in most characters between the Tury-assú specimen of *guianensis* and the Orope skin of *flavus*, being darker than the latter and lighter than the first though with the wing lining more cinnamomeous than in either. Dr. Hellmayr advises me, however, that he was able to match every character of the Puerto Bermúdez bird in a series of five skins of *guianensis* from Venezuela and French Guiana. For this reason my bird must, for the present, be referred to *guianensis*.

Todirostrum latirostre caniceps (Chapman).

Euscarthmus latirostris caniceps CHAPMAN, Amer. Mus. Novit., 118, p. 7, 1924—Florencia, Colombia; Amer. Mus. Nat. Hist.

Three males and two females from Vista Alegre, October 11 and 12, 1922.

Compared with a male(?) and female of *latirostre* from Todos Santos, Bolivia.

The Vista Alegre birds are separable from the Bolivian by the characters given for *caniceps*, of which I have seen no other examples.

Todirostrum cinereum peruanum subsp. nov.

Four males from Vista Alegre, August 17 October 12, 1922; a male from Chinchao, October 22; a male from Río Colorado, Chanchamayo Valley, February 14, 1923; and a female from Puerto Bermúdez, March 9, 1923.

Compared with sixty-three additional skins from other parts of Perú, western Ecuador, Colombia, Venezuela, British Guiana, and Surinam, including the type and two other skins of *T. viridanum* (see appended list).

A study of this material has resulted in the discovery of certain well-marked characters which justify the separation, as a new subspecies, of those birds occupying most of Perú except the northeastern portion. Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 486, 1926) has noted the similarity of Peruvian and east-Ecuadorian birds in certain respects and it is probable that the characters of the new race will be found in material from eastern Ecuador upon search. I have no specimens from that region to determine the point.

Type from Vista Alegre, Perú. Altitude 4,100 feet. No. 59,732 Field Mus. Nat. Hist. Adult male. Collected October 11, 1922, by J. T. Zimmer. Original number 3,021.

Diagnosis.—Nearest to *T. c. cinereum* of the Guianas, Venezuela, Colombia, and northern Brazil, but with much more black on the head, reaching farther posteriorly on the occiput, embracing the auriculars, and invading the malar region where it occupies all but the terminal margins of the feathers from the base of the mandible to the median line of the eye, forming a distinct (though sometimes concealed) black stripe obscured by narrow yellow tips; yellow tips of nasal plumes lacking or at least only faintly indicated in the males, slightly more noticeable in the females; back darker gray with less olivaceous tone. Back darker gray than in *coloreum* or *cearae;* throat yellow, not white as in *sclateri.*

Habitat.—Humid tropical and lower subtropical zones of Perú, except the extreme northwestern portion, and probably eastern Ecuador.

Description of type.—Whole top and sides of the head deep black including the auriculars and a stripe on the malar region from the base of the mandible to the median line of the eye; feathers of the

malar stripe narrowly tipped with yellow. Hind neck Blackish Slate; back a little paler gray with a trace of olivaceous on the rump; upper tail-coverts black. Entire under parts, including under wing-coverts, between Lemon Yellow and Pale Lemon Yellow. Upper wing-coverts black; lesser series tipped with the color of the back; median series tipped with bright Martius Yellow; greater series with outer margins broadly Martius Yellow; alula black with narrow yellow outer margins; primary-coverts black with a narrow yellow border on the outermost; bend of wing Lemon Yellow; remiges slightly fuscous black with greenish yellow outer margins, narrow on primaries, broader on secondaries and passing around the tips, equally broad and internally whitish on the tertials; inner margins of quills yellowish white. Rectrices black with white tips, narrow on middle pair, much wider on the outer two pairs and extending toward the base of the feathers broadly on the outer webs. Iris yellowish white; bill black, narrowly tipped with white; feet pale slate color. Wing, 47 mm.; tail, 35; exposed culmen, 13; culmen from base, 17; tarsus, 19.

Remarks.—Ten males measure: wing, 44–48 mm.; tail, 35–38½; exposed culmen, 12½–14½; culmen from base, 16–17; tarsus, 18–19½.

Females are similar to the males or a little paler gray on the back, and with the black of the head somewhat narrower though still present on the malar region; nasal plumes with a little more prominent yellowish tips. Wing, 43–46 mm.; tail, 32–36; exposed culmen, 12–14; culmen from base, 16½–18; tarsus 18–19¼.

The Moyobamba males have very faint yellowish tips on the nasal plumes which are not apparent except on search; they are absent in the other males. Both females from Moyobamba and that one from Poco Tambo have one or more feathers in the middle of the crown marked with white, a character sometimes present in *cearae* and strongly marked in *T. viridanum*.

This bird was found mostly in the bushy second-growth in more or less open situations. A pair at Chinchao were constructing a very pretty nest which had an overhanging roof above the side entrance. No eggs had yet been laid on October 22. In moving about through the vegetation, the bird carries its tail erect and wags it in all directions.

Material examined:

T. c. peruanum—Perú: Vista Alegre 4 ♂ (including type); Chinchao 1 ♂; Río Colorado, Chanchamayo 1 ♂; Puerto

Bermúdez 1 ♀; Moyobamba 4 ♂ 2 ♀; Poco Tambo 1 ♀; San Ramón 1 ♀.

T. c. cinereum Surinam: Paramaribo 1 ♂. British Guiana: Georgetown 1 ♂ 1 ♀. Venezuela: Encontrados 2 ♂ 1 ♀ 1?; Caracas 7 ♂ 1 ♀ 1?; Macuto 1 ♀; Maracay 6 ♂ 3 ♀ 1?; La Ceiba 1 ♂; Catatumbo R. 2 ♂; Orope 1 ♂. Colombia: Puerto Valdivia 1 ♂; Cuenta 1 ♂; Bogotá 4?. Brazil: Bôa Vista 1 ♂; Serra da Lua 1 ♂.

T. c. cearae- Brazil: Serra Baturité 1 ♂ (type); Deserto, Piauhy 1 ♀; Ibiapaba, Piauhy 2 ♂; Tury-assú, Maranhão 1 ♂; São Bento, Maranhão 1 ♂; Rosario, Maranhão 1 ♂ 1 ♀; Codó, Cocos, Maranhão 1 ♀; Barra do Corda, Maranhão 1 ♀.

T. c. coloreum--Brazil: Descalvados, Rio Paraguay 1 ♀.

T. c. sclateri Ecuador: Puente de Chimbo 1 ♂; San Javier 1 ♂.

T. viridanum- Venezuela: Río Araure 1 ♂ (type) 1 ♀; Maracaibo 1 ♂.

Lophotriccus vitiosus vitiosus (Bangs and Penard).

Cometornis vitiosus BANGS and PENARD, Bull. Mus. Comp. Zool., **64**, No. 4, p. 373, 1921—Perú; Mus. Comp. Zool.

A female from Puerto Bermúdez, March 8, 1923.

No material for comparison.

The specimen has been compared with the type by Dr. Hellmayr.

Lophotriccus pileatus pileatus (Tschudi).

E(uscarthmus) pileatus TSCHUDI, Arch. Naturg., **10**, (1), p. 273, 1844- Perú; Valley of Vitoc suggested by Hellmayr, 1927; Mus. Neuchâtel (lost?).

A male from Huachipa, September 21, 1922, and two males and two females (one female immature) from Chinchao, October 29 November 4.

Compared with seven specimens of *squamaecrista* from Las Lomitas, San Augustin, and Bogotá, Colombia, and Chimbo, Ecuador, and with five specimens of *luteiventris* from Costa Rica.

The specimens from Huachipa and Chinchao show the dark throats, the relatively greenish borders on the upper wing-coverts, and the dull, greenish yellow flanks of the typical race which was described from central Perú.

These curious little birds inhabited the depths of the forest and were difficult to secure owing to their secretiveness. Their note was

a peculiar "cree-ee-eek," weak and insect-like and very difficult to locate, while the birds themselves were so small and inconspicuous that they were lost in the shadows where they perched nearly motionless. I heard them many times but was not always successful in finding their exact position unless I made a particular search for them.

Pogonotriccus ophthalmicus Taczanowski.

Pogonotriccus ophthalmicus TACZANOWSKI, P. Z. S. London, 1874, p. 135—Amable Maria, Chanchamayo, Perú; type formerly in Warsaw Mus., now lost

?Leptopogon godmani SCLATER, P. Z. S. London, 1887, p. 48—Sarayacu, e. Ecuador; British Mus.

?Pogonotriccus alleni OBERHOLSER, Proc. U. S. Nat. Mus., **25**, p. 65, 1902—Río Cauca, Colombia; Amer. Mus. Nat. Hist.

Three males and two females from Huachipa, September 11–October 7, 1922.

Compared with a male and female from Gallera and El Roble, Colombia.

The Colombian birds seem to be a little brighter green above and brighter yellow below than my birds. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 493, 1926) finds no differences in Colombian, Ecuadorian, and north-Peruvian (Chaupe) specimens. Berlepsch (in litt. to Dr. Hellmayr) found topotypical skins from Junín to be paler and less olivaceous below than more northern specimens, an observation which agrees with the differences apparently existing between the Huachipa and Colombian specimens at hand. Possibly *alleni* is separable from typical *ophthalmicus*, but in any case the Huachipa specimens appear to be referable to *ophthalmicus*. The paler belly probably indicates a transition toward *ottonis* which connects this form with *eximius* of northeastern Argentina (two skins examined). I suspect that all these are subspecies of one group, *eximius*, but lack the material to demonstrate it.

Phylloscartes ventralis angustirostris (D'Orbigny and Lafresnaye).

M(uscicapa) angustirostris D'ORBIGNY and LAFRESNAYE, Mag. Zool., **7**, cl. 2, p. 52, 1837—Yungas, Bolivia; Paris Mus.

Leptopogon tristis SCLATER and SALVIN, P. Z. S. London, 1876, p. 254—Simacu, Bolivia; British Mus.

Three males from Chinchao, October 28–November 19, 1922.

Compared with two males from Molinopampa, Perú, and three males and a female from Concepción, Tucumán, Argentina; also with six males and two females of *ventralis* from Therezopolis, Rio, Brazil; the Territory of Misiones, Argentina; and Quebrado de los Cuervos and from near Dolores, Uruguay.

The specimens from Perú and Tucumán, Argentina, differ from the others by having a slight grayish shade on the forehead but otherwise they are not distinguishable as a geographic unit. The Peruvian examples average about the same tone of green on the back as *ventralis;* the Tucumán specimens are somewhat lighter green. One Molinopampa skin is as light as the Tucumán examples but the other is the darkest of all. The subspecies *angustirostris* is very poorly distinguished.

Pseudocolopteryx acutipennis (Sclater and Salvin).

Hapalocercus acutipennis SCLATER and SALVIN, P. Z. S London, 1873, p 187—Bogotá, colombia; British Mus.

Two females from Huánuco, July 22, 1922.

Compared with a male and female from Maimara, Jujuy, northwestern Argentina.

The Peruvian birds are a little smaller than the Argentine specimens and probably are more typical of the species. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 493, 1926) has noted that Ecuadorian and Colombian birds are smaller than Bolivian and Argentine examples.

Spizitornis parulus aequatorialis (Berlepsch and Taczanowski).

Anaeretes parulus aequatorialis BERLEPSCH and TACZANOWSKI, P. Z. S. London, 1884, p. 296—Cechce, w. Ecuador; ♀; Berlepsch coll., Frankfort Mus.

A male from La Quinua, May 14, 1922; a female from the mountains near Huánuco, 12,200 feet, June 30; and a female from Panao, July 15.

Compared with a male from Chical, western Ecuador, and a series of fifteen specimens of typical *parulus* from various parts of central and northern Chile.

The Peruvian birds agree well with the Ecuadorian specimen except that the latter is very slightly darker on the back.

Spizitornis flavirostris arequipae Chapman.

Spizitornis flavirostris arequipae CHAPMAN, Amer. Mus. Novit., 231, p. 4, 1926—Arequipa, Perú; Amer. Mus. Nat. Hist.

A male and female from Matucana, May 1 and 4, 1922, and a male from Cullcui, Marañón River, December 15.

Compared with two males from Putre, Tacna, "Chile," now Peru.

The Cullcui specimen has the wing bands whiter than the others (they are tinged with vinaceous in the Matucana and Arequipa specimens) and the white tips on the outer rectrices are broader, but in all other respects it agrees with the remainder of the series. Possibly it may represent an undescribed form but with only one specimen from the locality at hand it would be unwise to attempt a separation. In various other species the upper Marañón form has proved to be the same as the coastal race. The series as a whole agrees well with Chapman's description of this race as separated from the Cuzco and Huancabamba subspecies, *cuzcoensis* and *huancabambae*, of which I have seen no specimens.

Spizitornis reguloides albiventris Chapman.

Spizitornis reguloides albiventris CHAPMAN, Amer. Mus. Novit., 118, p 7, 1924—Huaral, Prov. Lima, Perú; Amer. Mus. Nat. Hist.

Two males and a female from Matucana, April 29 and May 2, 1922; a male from Santa Eulalia, April 20.

Compared with three males from Macate; also with a male of *nigrocristatus* from Cajamarca, an unsexed bird from Tulpo, near Huamachuco, and a female, nearest to *nigrocristatus*, from above Huánuco (cf. *nigrocristatus*).

The Matucana and Santa Eulalia birds are virtual topotypes of this black-throated, short-crested race.

Spizitornis reguloides nigrocristatus (Taczanowski).

Anacretes nigrocristatus TACZANOWSKI, Orn. Pér., 2, p. 555, 1884—Chota, Cajamarca, Perú; type formerly in Warsaw Mus., now lost.

A female from the mountains near Huánuco, 10,500 feet, June 3, 1922.

Compared with a male from Cajamarca, a specimen of undetermined sex from Tulpo, near Huamachuco, and six males and a female of *albiventris* from Santa Eulalia, Matucana, and Macate.

The Huánuco bird is not typical *nigrocristatus* but is much closer to that form than to the coastal form, *albiventris*. The crest is long (20 mm. longest plumes) and black to the base, the throat is extensively whitish on the margins of the feathers, the flanks are less heavily streaked than in the Cajamarca specimen but more lightly

than in the series of *albiventris*, the outer rectrices have more extensive white than in *albiventris* though less than in the Cajamarca specimen of the present form, and the general size is between the two extremes (wing 55 mm.). It is possible that a series from central Perú would show the constancy of these intermediate characters but, on the other hand, it might show even closer approach to the Cajamarca subspecies from which there is not a great deal of difference exhibited in the specimens at hand. For the present it is best to refer the Huánuco bird to *nigrocristatus*.

Serpophaga cinerea cinerea (Tschudi).

L(eptopogon) cinereus TSCHUDI, Arch. Naturg., **10**, (1), p. 276, 1844– Perú = vicinity of Tarma; type in Mus. Neuchâtel.

Three males and a female from Huánuco, May 22–July 23, 1922.

Compared with a male from San Ramón, a male from Río Utcubamba, a female from Uchco, an unsexed immature specimen from Puente de Chimbo, Ecuador, and a female from Ecuador (collected by Buckley); also with four skins of *cana* from Salento, San José, and Bogotá, Colombia, and Mérida, Venezuela; and two males of *grisea* from Costa Rica and Panamá.

The Peruvian birds are typical of *cinerea*.

This little flycatcher frequented the rivers and was commonly found on the stones along the banks or above the surface of the water. Its note was a sharp "peep." It was called "Pushti" by some of the natives.

Mecocerculus leucophrys brunneomarginatus Chapman.

Mecocerculus setophagoides brunneomarginata CHAPMAN, Amer. Mus. Novit., **118**, p. 1, 1924– –Cedrobamba, Urubamba Valley, Perú; Amer. Mus. Nat. Hist.

Two males and a female from above Huánuco, 10,500 and 12,200 feet, June 2–22, 1922.

Compared with nine skins of *leucophrys* from Concepción and Las Pavas, Tucumán, Argentina; also with seven skins of *setophagoides* from northeastern Colombia and western Venezuela, and two skins of *notatus* from near Popayan, Colombia.

I have not seen *rufomarginatus* from central Colombia, Ecuador, and northwestern Perú nor topotypical *brunneomarginatus* but, judging by descriptions, my specimens must be somewhat intermediate in characters as would be expected since the locality is intermediate.

Mecocerculus stictopterus taeniopterus Cabanis.

Mecocerculus taeniopterus CABANIS, Journ. Orn., **22**, p. 98, 1874—central Perú, Maraynioc; Berlin Mus.

Mecocerculus stictopterus aplastus OBERHOLSER, Proc. U. S. Nat. Mus., **25**, p. 63, 1902—Maraynioc; U. S. Nat. Mus.

Two males from the mountains near Huánuco, 10,500 feet, May 31 and June 15, 1922; a male and two females from above Panao, July 4 and 11.

Compared with a male from Molinopampa; also with four skins of *stictopterus* from Chical, Ecuador, and from Almaguer and near Popayan, Colombia.

The Peruvian series is separable from the Ecuadorian and Colombian birds by the paler head, greener (less brownish) back, whiter (less grayish) breast, brighter yellow crissum, and less buffy band on the outer margins of the inner remiges. The characters are not entirely constant, even in the small series at hand. The Molinopampa bird has the upper parts nearly as brown as in *stictopterus* and the breast about as gray; several Peruvian skins have distinctly isabelline margins on the inner remiges while the Popayan skin of *stictopterus* has little or no buffy tinge in the same region. In series, however, the races are quite separable though the Molinopampa bird evidently is intermediate.

Elaenia albiceps modesta Tschudi.

E(laenia) modesta TSCHUDI, Arch. Naturg., **10**, (1), p. 274, 1844—Perú = coast region, probably near Lima; Mus. Neuchâtel.

A male from Santa Eulalia, April 22, 1922; a male and two females from Chosica, April 14–16; three males and a female from Huánuco, 6,500 feet, May 24 and July 22–30; a male and three females from Vista Alegre, August 30–October 18; a male and three females from Huachipa, September 21–October 1; a male from Chinchao, October 23; and a male from Cullcui, Marañón River, December 16.

Compared with four males and six females from Moyobamba; also with a male of *griseogularis* from Chical, Ecuador, and the type and twenty-one additional specimens of *chilensis* from the provinces of Santiago, Malleco, Valdivia, Llanquihué, Cautin, and Chiloë, Chile; and with two skins from Santa Fé and Tucumán, Argentina, doubtfully referable to *chilensis*.

The Peruvian series is very puzzling. Two types of plumage are in evidence. One type shows a greener back, whiter crest, more

yellowish flanks and crissum, and very distinct wing bars and margins on the tertials; the other has a browner black, yellower crest, whiter flanks and crissum, and poorly defined wing bars and margins on the tertials. The specimens from Chosica and Santa Eulalia (which are topotypical) are of the second type. The Moyobamba birds are mostly of the first type, although three specimens are like the Chosica birds. The Huánuco, Huachipa, and Vista Alegre specimens are mostly dull-colored but several are brightly marked. The Culleui bird is the largest, the Chinchao bird next in size, and the Chosica and Santa Eulalia males almost as large; the rest of the males are slightly smaller. Many of the specimens are in molt so that it is difficult to make an exact comparison among them, but there are freshly plumaged specimens in both series. The exact significance of this variation must await explanation until a larger series of specimens can be examined.

Elaenia gigas Sclater.

Elainea gigas SCLATER, P. Z. S. London, "1870," p. 831, 1871 Río Napo, Ecuador; British Mus.

A male from Vista Alegre, August 19, 1922, and a female from the Río Colorado, Chanchamayo Valley, February 1, 1923.

No material for comparison.

The female is more deeply colored than the male and without the white area on the lower belly, but it is immature, judging by the buffy wing bands and the pointed, buff-tipped rectrices.

The species was found in the gardens near the plantation buildings in both localities.

Elaenia chiriquensis albivertex Pelzeln.

Elainea albivertex PELZELN, Orn. Bras., 2, pp. 107, 177, 1868 Ypanemá, São Paulo, Brazil; Vienna Mus.

Elainea lundii REINHARDT, Vidensk. Medd. Naturhist. Foren., 1870, p. 314, pl. 8, fig. 1—Lagoa Santa, Minas Geraes, Brazil; Copenhagen Mus.

Elainea gracilis TACZANOWSKI, Orn. Pér., 2, p. 271, 1884—Chirimoto, Perú; Warsaw Mus.

Elaenia sororia BANGS, Proc. Biol. Soc. Wash., 12, p. 175, 1898—Palomina, Santa Marta, Colombia; Mus. Comp. Zool.

A male and young female from Vista Alegre, August 16 and October 12, 1922.

Compared with a female from Chachapoyas, Perú; two males and three females from the State of Maranhão, Brazil; two females

from Chapada, Matto Grosso; a male from Serra da Lua, Brazil; a female from Villa Rica, Paraguay; four males from Buena Vista, Santa Cruz, Bolivia; a Bogotá skin; a female from Río Chama, Venezuela; and seven males and three females from Maracay, Venezuela; also with two males and a female of *chiriquensis* from Colón, Panamá.

It is impossible to separate the Peruvian birds from the Brazilian series or to arrange the material at all satisfactorily. The Chachapoyas specimen is as yellow below as are the examples of *chiriquensis* and as pale on the breast, though the upper parts are grayer. The Vista Alegre male is paler below, matching some Maranhão examples. The Bolivian birds appear to have darker breasts than any others. The Maracay, Venezuelan specimens are hardly distinct from *chiriquensis* and the Bogotá bird agrees with them. I am not sure that *albiventer* is separable from *chiriquensis;* a large series from Central America should be compared with an equally large series of South American birds to be certain of the relationship.

Elaenia obscura obscura (D'Orbigny and Lafresnaye).

M(uscipeta) obscura D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 48, 1837 —Yungas, Bolivia; Paris Mus.

Muscipeta guillemini D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 319, 1839—new name for *Muscipeta obscura* D'ORBIGNY and LAFRESNAYE.

Elainea rustica SCLATER, P. Z. S. London, 1861, p. 408—new name for "*Elainia obscura* TSCHUDI"; Brazil and Argentina.

A male from Chinchao, November 13, 1922.

Compared with a male from Molinopampa, Perú, two males and an unsexed bird from Bauru, São Paulo, a male from Victoria, São Paulo, and a male from Therezopolis, Rio, Brazil; also with six skins of *pudica* from Santa Elena and Páramo de Tamá, Colombia, and Escorial, Mérida, and Pinos, Venezuela.

The Peruvian birds appear to be indistinguishable from the Brazilian series, but the Chinchao specimen is badly worn and faded, and difficult to compare satisfactorily.

Elaenia pallatangae Sclater.

Elainea pallatangae SCLATER, P. Z. S. London, 1861, p. 407, pl. 41—Pallatanga, Ecuador; ♀; British Mus.

A male and female from the mountains near Huánuco, 10,500 feet, June 1 and 4, 1922; four males and a female from Panao,

July 15; a young female from Huachipa, September 24; and a female from Chinchao, November 2.

Compared with a female from Molinopampa, and five males and three females from Chunchi and Huigra, Ecuador (Acad. Nat. Sci. Philad.).

The Molinopampa bird is a trifle browner than most of the central Peruvian specimens but the difference is not constant. Peruvian and Ecuadorian specimens are inseparable.

This species inhabited the bushes and smaller trees on the open hillsides and along the roads in the temperate and subtropical zones. Huachipa (4,600 feet) probably represents the lower limit of vertical distribution; the locality is just at the boundary between tropical and subtropical zones.

Elaenia caniceps cinerea Pelzeln.

Elainea cinerea PELZELN, Orn. Bras., 2, pp. 108, 180, 1868 Marabitanas, Rio Negro, Brazil; Vienna Mus.

A female from Puerto Bermúdez, March 10, 1923.

Compared with two males and a female of *caniceps* from Rio de las Velhas, Codó (Cocos, Maranhão), and São Amaro, Brazil.

The bright yellow under parts of the Puerto Bermúdez female identify it as *cinerea*.

Phaeomyias murina wagae (Taczanowski).

Myiopatis Wagae TACZANOWSKI, Orn. Pér., 2, p. 253, 1884 Chirimoto, Perú; formerly Warsaw Mus., now lost; paratype in Berlepsch coll., Frankfort Mus.

A male from the Río Colorado, Chanchamayo Valley, January 28, 1923.

Compared with three males from San Ramón and three males and two females from Moyobamba; also with two skins of *inflava* from Trujillo and Menucucho, and a good series of *murina* and *incomta* from various parts of Brazil, British Guiana, Venezuela, and Colombia.

The east-Peruvian birds appear to be recognizably distinct by reason of larger bills and the more extensive and brighter yellow under parts. I have not seen *tumbezana* from the arid littoral of southwestern Ecuador and northwestern Perú.

Camptostoma obsoletum sclateri (Berlepsch and Taczanowski).

Eupsilostoma pusillum SCLATER (nec *Myopatis pusilla* CABANIS and HEINE), P. Z. S. London, 28, p. 68, 1860- Pallatanga, Ecuador; ♀; British Mus.

Ornithion sclateri BERLEPSCH and TACZANOWSKI, P. Z. S. London, 1883, p. 554 new name for *Eupsilostoma pusillum* SCLATER.

A male from Chosica, April 14, 1922; a male from Santa Eulalia, April 20.

Compared with two skins from Ecuador, seven from northern Perú, and small series of *obsoletum*, *cinerascens*, *napaeum*, and *pusillum* from various localities.

The Peruvian birds are closer to the Ecuadorian *sclateri* than to any other form but a few seem to be duller on the rump and to have less white about the eye. I have not seen enough Ecuadorian material to determine the constancy of this difference.

Phyllomyias griseiceps (Sclater and Salvin).

Tyranniscus griseiceps SCLATER and SALVIN, P. Z. S. London, for 1870, p. 841, 1871—Babahoyo, Ecuador; British Mus.

A male from the Río Colorado, Chanchamayo Valley, February 13, 1923.

No material for comparison.

An exact study of the Peruvian form of the species is impossible without more material. Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 501, 1926) records specimens from Perené which is across the Río Chanchamayo from the mouth of the Río Colorado.

Tyranniscus uropygialis (Lawrence).

Mecocerculus uropygialis LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., 9, p. 266, 1870--"Supposed to be Ecuador"; Amer. Mus. Nat. Hist.

A female from the mountains near Huánuco, 10,500 feet, June 1, 1922.

Compared with a male of *T. n. nigro-capillus* from Molinopampa, Perú, and two males and two females from the Mérida region of Venezuela.

The species, *uropygialis*, is very closely allied to *nigro-capillus* but there are certain supposed peculiarities of distribution which require explanation before the relationship can be determined precisely. The shape of the bill, the wing formula, and the pattern of coloration are exactly alike in the two groups, and the rufescent rump

of *uropygialis*, which is one of its characteristics, is suggested in some of the Mérida specimens of *nigro-capillus*. A large series from all parts of the ranges of both groups will be necessary to settle the problems of relationship.

Tyranniscus viridiflavus viridiflavus (Tschudi).

E(laenia) viridiflava TSCHUDI, Arch. Naturg., **10**, (1), p. 274, 1844 Perú; Mus Neuchâtel.

Tyranniscus frontalis BERLEPSCH and STOLZMANN, Ibis, 1894, p 390 Garita del Sol, Vitoc, Perú; Warsaw Mus.

Four males and three females from Vista Alegre, August 18 October 18, 1922.

Compared with three males and two females of *chrysops* from La Sierra and Fusugasugá, Colombia; Colón, Tachira, Venezuela; and Poco Tambo, Perú.

The Vista Alegre birds are separable from the more northern specimens but I can see no reason for keeping them specifically distinct. The only constant difference appears to be in the intensity of the yellow coloration on the under parts. The specimen from Poco Tambo effectively bridges the difference in the color of the crown, having the top of the head as dark as in *viridiflava* though otherwise it is like *chrysops*. Two *chrysops* from La Sierra, Colombia, and the bird from Venezuela have the lores as pale yellow as in *viridiflavus*, being quite different in that respect from the other Colombian specimen. The size and structural details are about the same in the two forms and there is no confusion in geographical distribution.

Oreotriccus plumbeiceps (Lawrence).

Pogonotriccus plumbeiceps LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., **9**, p. 267, 1869 - Bogotá; U. S. Nat. Mus.

A male and female from Huachipa, September 11 and 18, 1922.

No material for comparison.

The superficial resemblance between this species and *Pogonotriccus ophthalmicus* is very striking. Both have the same pattern of coloration, differing in very slight particulars, but the blunter shape of the bill and the absence of the heavy rictal bristles distinguish the present species very clearly.

Leptopogon superciliaris superciliaris Tschudi.

L(eptopogon) superciliaris TSCHUDI, Arch. Naturg., **10**, (1), p. 275, 1844— Perú; montaña of Vitoc suggested by Hellmayr, 1927; Mus. Neuchâtel.

Two males from Vista Alegre, August 30 and 31, 1922; four males and three females from Huachipa, September 11–October 1.

Compared with a female from Rioja.

There is considerable individual variation in the color of the wing bars but in all the specimens at hand there is more or less tawny buff present, sometimes very slightly indicated, sometimes intense.

Mionectes olivaceus fasciaticollis Chapman.

Mionectes olivaceus fasciaticollis CHAPMAN, Amer. Mus. Novit., **67**, p. 9, 1923—Tulumayo, Perú; ♀; Amer. Mus. Nat. Hist.

Three males and two females from Huachipa, September 29–October 4, 1922; a male from Chinchao, November 14.

Compared with six specimens of *venezuelensis* from Venezuela, two *olivaceus* from Costa Rica, and two *hederaceus* from western Colombia and western Ecuador.

The Peruvian birds are distinct from the other forms examined but I am not sure how distinct they may be from *pallidus* of eastern Colombia which I have not seen. Two of my specimens have the crown noticeably darker than the back. The throat in all the specimens is about as in *hederaceus* though the breast is more broadly streaked, in most cases, with clearer whitish. In these respects they agree with the description of *pallidus*. However, the belly is not paler than in *hederaceus* but about the same tint, and in most of the skins the head is about the color of the back; these may prove to be the most stable characters for the recognition of the present race.

One of the Huachipa males and the San Ramón male do not have the second primary deeply emarginated as in the three other males but otherwise do not appear to be immature.

Mionectes striaticollis poliocephalus Tschudi.

M(ionectes) poliocephalus TSCHUDI, Arch. Naturg., **10**, (1), p. 275, 1844—Perú; Valley of Vitoc suggested by Hellmayr, 1927; Mus. Neuchâtel.

A male from Vista Alegre, August 21, 1922; a female from Chinchao, November 20.

Compared with a male of *columbianus* from La Candela, Colombia.

Both Peruvian birds show the characters of *poliocephalus*, although the female (which is not fully adult) is less clearly marked than the male. The latter appears to be adult but lacks the attenua-

tion of the second primary which is supposed to characterize the adult males of this species. Both examples have noticeable streaks on the breast. The male has these marks very fine on a dark green ground; the young female has the ground paler (grayer) with the streaks distinctly broader, though not as heavy as in *columbianus*, and there is less green on the back of the head. The presence of the streaks on the chest may indicate an approach toward the characters of *striaticollis* of Bolivia.

Orochelidon murina (Cassin).

Petrochelidon murina CASSIN, Proc. Acad. Nat. Sci. Philad., 6, p. 370, 1853 - Ecuador; Acad. Nat. Sci. Philad.

Atticora cyanophaea CABANIS, Journ. Orn., 9, p. 92, 1861 Santa Fé de Bogotá, Colombia; Berlin Mus.

A female from the mountains near Huánuco, 12,200 feet, June 21, 1922.

Compared with a female from near Leimabamba, Perú, and a female from Puente Andalucia, Colombia.

The two Peruvian birds are distinctly more greenish above than the Colombian bird, but the difference evidently is individual since Hellmayr (Archiv. Naturg., 85, (10), A, p. 10, 1920) noted that Ecuadorian birds were greener than specimens from Ollachea, Perú, and Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 556, 1926) found no differences of racial value in specimens from Colombia, Ecuador, and Perú.

Pygochelidon cyanoleuca (Vieillot).

Hirundo cyanoleuca VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 14, p. 509, 1817- based on AZARA'S "Golondrina de la timoneles negros"; Paraguay.

A female and a young male and female from Huánuco, July 23, 1922; a young male from Huachipa, October 1.

Compared with a series of skins from Moyobamba and Hacienda Llagueda, Perú; Concepción, Tucumán, Argentina; Bogotá, San Antonio, and Caldas, Colombia; Puente de Chimbo, Ecuador; Parotani, Bolivia; Therezopolis and Rio de las Velhas, Brazil; and Macuto, Venezuela.

There is no racial difference apparent in the series.

Pygochelidon patagonica peruviana Chapman.

Pygochelidon patagonica peruviana CHAPMAN, Amer. Mus. Novit., 30, p. 7, 1922—Huaral, Province of Lima, Perú; Amer. Mus. Nat. Hist.

Two males from Matucana and Santa Eulalia, May 1 and April 22, 1922.

Compared with a series of *patagonica* from Concepción, Tucumán, Argentina, and Baños del Toro, Papudo, and Lake Gualletue, Chile; also with a female from San Ramón and a young female from Yurimaguas, Perú, which I refer to *patagonicus*.

The Matucana and Santa Eulalia birds are small and have the white of the under tail-coverts practically absent, being reduced to a small whitish, but not white, area at the very base of the short coverts. The San Ramón and Yurimaguas specimens (May 26 and September 24) I take to be winter birds from the south; the Yurimaguas specimen is in full (pre-nuptial) molt.

Stelgidopteryx ruficollis ruficollis (Vieillot).

Hirundo ruficollis VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., **14**, p. 523, 1817—Brazil = Rio de Janeiro; Paris Mus.

A male from Río Colorado, Chanchamayo Valley, February 1, 1923.

Compared with specimens from Moyobamba, Rioja, and San Ramón, Perú, and with examples from São Marcello (Bahia), Piraputanga (Matto Grosso), and Tranqueira (Maranhão), Brazil.

The Peruvian series appears to be inseparable from the Brazilian birds. The Río Colorado specimen is distinctly darker than any of the others, being blacker on wings and tail, more dusky on the back and head, darker brown on the flanks, and deeper rufescent on the throat than the rest, including a female from San Ramón, very near to the Río Colorado. The specimen, however, is just completing its molt and the plumage is very fresh, which may account for the unusually heavy coloration.

Cyanocorax violaceus Du Bus.

Cyanocorax violaceus DU BUS, Bull. Acad. Roy. Belg., **14**, pt. 2, p. 103, 1847—Perú; Brussels Mus.

Two females, Puerto Bermúdez, March 14, 1923.

Compared with a specimen from "Bogotá."

One bird lacks the whitish band on the upper hind neck, having the whole area uniform bright Aniline Lilac; the other has the white line well marked.

The species occurred in small flocks and was not common. It was seen only at Puerto Bermúdez.

Xanthoura yncas yncas (Boddaert).

Corvus yncas BODDAERT, Tabl. Pl. Enl., p. 38, 1783 based on DAUBENTON, Pl. Enl. 625; Perú.

(*Corvus*) *peruvianus* GMELIN, Syst Nat., 1, p. 373, 1788 based on DAUBENTON, Pl. Enl. 625; Perú.

(*Pica*) *chloronota* WAGLER, Syst. Av., genus *Pica*, sp. 12, 1827 Perú, "Collect. Ryals at Leadbeater, Londin."

?*Pica luteola* LESSON, Traité d'Orn., p. 331, 1831 "patrie?"

One female from Chinchao, October 31, 1922.

Compared with a series of skins from Hacienda Limón, Molinopampa, and Uchco, northern Perú.

The Chinchao specimen agrees well with the average of the more northern series. It has the occiput and nape rather noticeably tinged with pale blue, more pronouncedly than in some of the others but much less than in a female from Molinopampa which has the same region broadly tipped with Light Squill Blue (through which the rich creamy bases of the feathers are visible only anteriorly). The blue on the anterior part of the head of this Molinopampa bird is Light Cadet Blue, noticeably paler than the Diva Blue x Gentian Blue of the normal adult.

This species was not common in the regions visited and the bird obtained was the only one seen. It had a loud, hoarse call-note, "wawk, wawk, wawk," not greatly unlike that of *Paradisaea raggiana*. It appears to inhabit the humid subtropical zone. The local residents gave it the name of "Quien-quien."

Cyanolyca viridi-cyana jolyaea (Bonaparte).

Cyanocitta Jolyaea BONAPARTE, Tageblatt 29 Versamml. Deutscher Naturforscher und Aerzte, Wiesbaden, (Beilage), p. 89, Sept. 25, 1852 "Amer. m." (= Peru on label of type), I suggest Molinopampa, n. Perú; Paris Mus.

Four males and one female from near Panao, 10,300 feet, July 6–16, 1922.

Compared with four females and one male from Molinopampa; also with two specimens of *viridi-cyana* labeled as collected by Ockenden at Quispicanchis, Marcapata, Perú.

The series of *jolyaea* is fairly consistent. My four males are all deeply colored and one of the Molinopampa females is nearly as strongly marked as the most extreme Panao example. The Panao female is noticeably lighter and greener but not so much so as another

of the Molinopampa females. The Molinopampa male is lighter and greener than my males, about like my female.

Dr. Hellmayr has kindly compared my female and darkest male with Bonaparte's type in the Paris Museum and finds that the type is somewhat intermediate between these two in the color of the throat but like the Panao female in the color of the remaining under parts, and nearer to the male in respect to the upper parts. The type is labeled as from Perú and doubtless came from somewhere in the northern part of the country, for which reason I suggest Molinopampa as an appropriate type locality, in the absence of more definite knowledge as to the exact source of Bonaparte's bird.

It is doubtful if the two specimens of *viridi-cyana* at hand actually came from the Marcapata district of Perú. Hellmayr's *cyanolaema* was described from Chuhuasi with another example present from Huasampilla whence Sclater later described his synonymous *cuzcoensis*. Both these localities are in the same general region as Marcapata and it is extremely unlikely that *viridi-cyana* also occurs there. The labels have very meager data, quite unlike Ockenden's usually careful handiwork. No exact date beyond the year 1905 and no elevation, sex, colors of soft parts, or other information is given. Since the specimens evidently are from those secured on Ockenden's last, ill-fated expedition, it is probable that he did not collect them himself nor supply the data and they may have been purchased locally with original source unknown. The known Marcapata form, *cyanolaema*, is an exact intermediate between *viridi-cyana* and *jolyaea*.

The original reference to Bonaparte's description appears never to have been quoted. Cabanis received a copy of the reprinted article and reprinted it a second time in the Journal für Ornithologie, **1**, pp. 46, 47, 1852. I discovered a copy of the first reprint in the Edward E. Ayer Ornithological Library of Field Museum and published an account and photographic reproduction of it in the Catalogue of the Ayer Library (Field Mus. Nat. Hist. Publ., Zool. Ser., **16**, p. 70, pls. 3, 4, 1926). More recently I have come upon the original publication in which the paper appeared.

The society of the *Deutscher Naturforscher und Aerzte* has been in existence for many years, holding its meetings annually in one town after another and issuing a variety of publications depending, apparently, on the resources of the particular meetings. In 1852 the twenty-ninth meeting was held in Wiesbaden from September 18 to 24. The publication that year consisted of a *Tageblatt*, issued each day of the meeting and giving the day's program with a review of

the minutes of the preceding day. The series is numbered consecutively from 1 to 7. On the 25th of September a *Beilage zu Nr. 7 d. Tageblatts* was published with the minutes of the meeting of the 24th, this being paged continuously with the preceding leaflets.

The *Tageblatt* for September 23 (p. 58) announces Bonaparte as on the program for the day. That for the 24th (p. 74) mentions his name among those taking part on the previous day. The *Beilage*, published on the 25th, includes a *Nachtrag zu der Verhandlungen der Sectionen am 23. September* which contains Bonaparte's original paper in full, exactly as reprinted except that it occupies parts of two pages, 88 and 89, being divided at the end of the table of "Aves." The descriptions of the three new species (*Thalassidroma tethys, Chelidoptera albipennis,* and *Cyanocitta Jolyaea*) are all on page 89.

That this leaflet was actually published as stated on September 25 is supported by the fact that Bonaparte mailed at least one copy of the reprint from Frankfort on the following day, that being the copy sent to Du Bus and now in Field Museum of Natural History.

Heleodytes fasciatus fasciatus (Swainson).

Furnarius fasciatus SWAINSON, Anim. in Menag., p. 351, 1838 —Perú = n. Perú; W. Hooker coll., now in Cambridge (Eng.) Mus.

Eight males and three females from Huánuco, May 24–July 30, 1922.

Compared with five males and a female from Huancabamba (Mus. Comp. Zool.), a male and female from Menucucho, and five females from Hacienda Llagueda, Hacienda Limón, Trujillo, and Macate; also with four males and two females of *pallescens* from Daule and Santa Rosa, Ecuador (Amer. Mus. Nat. Hist.), a male and female from Sullana, Perú (Mus. Comp. Zool.), and a specimen from Milagro, Ecuador.

The Huánuco birds are larger and darker than the north-Peruvian skins of *fasciatus* but since most of my specimens are in molt it is difficult to say with precision what the differences may be in their entirety. I prefer, therefore, to refer them to *fasciatus* until a more satisfactory series is available for study.

The Banded Wren was a most interesting, if mischievous, denizen of the thickets in the vicinity of Huánuco. Its bulky nests were common objects in the trees throughout the valley, constructed of grass, fibers of other plants, cotton, and a few small sticks. The nests seemed to be kept in repair although none that I found were

used for incubation purposes, and I was informed that some of the structures were used for roosting places and others were built as a blind to distract attention from the genuine nest. They were about the size of a football and with a side entrance. To obtain the cotton, which forms a large portion of the building material when available, the birds are said to rob the cotton fields to the great disgust of the native planters. They also stole many of the tufts of cotton which I had twisted around convenient twigs to mark the location of my traps for small mammals, and it was some time before I discovered the thieves.

The birds have the curious habit of singing in pairs. Sometimes one will pick up the song as the other stops and keep the rhythm continuous; sometimes both sing together or with interspersed notes, making a jumbled chorus. The syllables are not always the same. The most common ones were "yu-we-a-weé, yu-we-a-weé," or "cha-weé-a-wuh, cha-weé-a-wuh, ..." The local names for the wren, based on its vocal performance, are "Taurugarái" and "Café-con-leche."

Odontorchilus branickii branickii (Taczanowski and Berlepsch).

Odontorhynchus branickii TACZANOWSKI and BERLEPSCH, P. Z. S. London, 1885, p. 72, pl. 7, fig. 1 – Machay, Ecuador; Warsaw Mus.

A male and female from Huachipa, September 11 and 18, 1922.

Compared with two males, a female, and an unsexed bird from Machu Picchu, Utcuyacu, and Uchco, Perú (Amer. Mus. Nat. Hist.); also with a male of "*minor*" from La Palma, Colombia (Amer. Mus. Nat. Hist.).

The Huachipa birds are in worn plumage agreeing in that, as in other respects, with an Utcuyacu male. The Machu Picchu and Uchco skins are in fresh plumage and in comparison with the Colombian skin of "*minor*," also fresh, are a little darker in coloration than this northern bird. The Machu Picchu male and the Colombian male are of the same size (wing 62 mm.), the Huachipa male is but little smaller (wing 61 mm.), and the type of *branickii*, according to the authors, was very little less (wing 60 mm.). In view of this it seems very probable that *minor* (which was described as having a wing of 53 mm. in the male sex) was based on a wrongly sexed female and is therefore inseparable on the basis of size. The apparent differences of coloration, in turn, are slight and need to be confirmed by larger series from Colombia.

Thryophilus leucotis peruanus Hellmayr.

Thryophilus leucotis peruanus HELLMAYR, Anz Orn Ges. Bayern, 5, p 11, 1921 Nauta, Rio Maranon, Peru, Frankfort Mus

A male from Puerto Bermúdez, March 6, 1923.

Compared with ten skins of *albipectus* from Brazil, British Guiana, and Caura, Venezuela; twelve of *venezuelanus* from Catatumbo, Orope, Encontrados, Guayabo, and La Uraca, Venezuela, seven *bogotensis* from Bogotá and El Guayabal, Colombia, and Valera, Venezuela; and a Bogotá skin of *leucotis*.

In dorsal coloration the Peruvian specimen is dull and dark and resembles certain examples of *albipectus* from near Bôa Vista, Brazil, but it is darker on the top of the head and much more rufescent below; the whole breast and belly are deep Pinkish Buff (to light Tawny Olive), the flanks are Snuff Brown, and the under tail-coverts are Sayal Brown.

Sphenura coraya amazonica (Sharpe).

Thryothorus amazonicus SHARPE, Cat. B. Brit. Mus., 6, p 235, pl. 15, fig 1, 1881- Sarayacu, e. Perú; British Mus

?*Thryothorus albiventris* TACZANOWSKI, P. Z. S London, 1882, p. 5 Chirimoto, Perú; formerly Warsaw Mus., now lost.

Two males from Vista Alegre, August 21, 1922; one from Chinchao, November 13.

Compared with four specimens of *cantator* from the Chanchamayo district (three in Amer. Mus. Nat. Hist.), and an adult male and two immature specimens of "*albiventris*" from Moyobamba.

Owing to the comparative rarity of Peruvian examples of this group I am unable to fix the identity of my birds without question. Apparently they are not referable to *cantator* from the Chanchamayo Valley. The four examples of that form at hand agree with Taczanowski's description in the matter of rufous and black bars on the tail and the rufous under tail-coverts, uniform or barred with dusky, whereas my specimens have the tail and the under tail-coverts grayish (Hair Brown) barred with black. Judging from descriptions, the Vista Alegre and Chinchao birds are closest to *amazonicus* though I have no topotypical specimens of the latter for comparison.

The Moyobamba specimens appear to represent *albiventris*. The adult has the whole mid line of the under parts white, with the flanks buffy brown and the sides of the breast gray, the crown overlaid

with Hair Brown, and the back light in color (about Hazel x Tawny). The young birds are duller above and rather broadly ochraceous buff below. The tail and under tail-coverts of both adult and young are barred with gray, not rufous.

Berlepsch (Journ. Orn., 37, p. 293, 1889) records a specimen of *amazonicus* from Yurimaguas, not very distant from Moyobamba, and in his unpublished notes he describes a young male from Sarayacu in comparison with the Yurimaguas specimen, concluding that the two are not specifically separable. The differences he mentions as distinguishing the Sarayacu bird and the Yurimaguas specimen are the same as separate my Vista Alegre and Chinchao birds from the Moyobamba adult, except that my two specimens are darker above as well as duller than the Moyobamba skin.

None of the known specimens of *albiventris* and *amazonicus* agree exactly with any of the others. Sharpe had a single specimen of *amazonicus;* Taczanowski had one of *albiventris;* Berlepsch had two skins from two localities; my two specimens do not agree in detail. The series of *cantator* exhibits great variation among the various specimens and it is certain that the northern form or forms must do the same. For the present, therefore, it appears best to recognize but one race from north-central and northeastern Perú and await more material before attempting to distinguish additional races of what is at best a very variable species.

The generic name *Pheugopedius* is antedated by *Sphenura* Lichtenstein (Verz. Vögel Mus. Berol., pp. 7, 8, May, 1822—type, by monotypy, *S. coraya;* cf. Mathews, Birds Australia, **10**, p. 149, 1923). If the genus is not worthy of recognition, the oldest name is *Thryothorus.*

Troglodytes musculus albicans Berlepsch and Taczanowski.

Troglodytes furvus albicans BERLEPSCH and TACZANOWSKI, P. Z. S. London, 1883, p. 540 Guayaquil, Ecuador; Frankfort Mus.?

Two males from Chinchao, one male from Vista Alegre, and one male from Huachipa, August 28–November 14, 1922.

Compared with a series from Chachapoyas, Moyobamba, Yurimaguas, and Uchco, Perú; Puente de Chimbo, Ecuador; and various localities in Brazil, Venezuela, and British Guiana.

These specimens are rather puzzling in affinities but seem to belong to the widely distributed form, *albicans.* None of the four specimens have the whitish median under parts of typical *albicans,*

the vinaceous tone of *audax*, nor the rich coloration of *puna*, but they are somewhere in the midst of all three.

The series at hand furnishes evidence of sufficient variation in *albicans* to cover the differences in ventral coloration shown by my four specimens. Especially do the examples from farther north in Perú exhibit transitional differences. Adult Moyobamba and Yurimaguas birds are well-marked *albicans;* Chachapoyas birds are most like my own examples; one Uchco skin is intermediate and one other is typical *albicans*. Some of the specimens from Maranhão, eastern Brazil, show a lack of white below, so it seems unlikely that much significance is attached to this variation.

There is some resemblance to the coastal form, *audax*, in the Chachapoyas skins, but the lack of vinaceous tinge in the Huachipa, Vista Alegre, and Chinchao specimens removes these last-named examples still farther from the littoral race. On the back and crown, all four skins are somewhat deeper brown than any other of the *albicans* series and strongly suggest *puna*. One Chinchao bird has the rump dark, though little more rufescent than the back; the other Chinchao specimen has the rump distinctly brighter; the Huachipa example has rump and upper tail-coverts as rich rufescent as some examples of *puna*.

On the whole, the subtropical valley of the upper Huallaga seems to be occupied by a transitional form which connects *albicans* and *puna;* higher up in the same valley, *puna* appears to be established.

Troglodytes musculus audax Tschudi.

Troglodytes audax TSCHUDI, Faun. Per., Aves, p. 185, 1846 coast of Perú; Mus. Neuchâtel.

One male and one female from Vitarte, April 26, 1922; two males from Santa Eulalia, April 22 and 23; two males from Matucana, April 30 and May 4.

Compared with five males from Hacienda Limón, Hacienda Llagueda, and Macate, northern coast of Perú; also with a male and a female of *carabayae* from San Ramón.

The present specimens are presumably topotypical of *audax*, especially the Vitarte birds. They agree among themselves and with the specimens from farther up the coast. In general the dorsal surface is unbarred, but there are very faint traces of fine barring in all of the skins. The male of *carabayae* from San Ramón is exactly similar in this respect but is noticeably grayer and darker above,

with much duller rump and upper tail-coverts; the female is similarly dark but is strongly barred above.

Troglodytes musculus puna Berlepsch and Stolzmann.

Troglodytes musculus puna BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 329—Ingapirca, Perú; Warsaw Mus.

A male and female from La Quinua, May 8, 1922; four males, one female, and one specimen of undetermined sex from the mountains near Huánuco, 10,500–12,200 feet, June 2–30; one female from Panao, July 8; two males from Huánuco Viejo, December 24.

Compared with a male from near Balsas and one from near Molinopampa, Perú.

All but the Huánuco Viejo birds are clearly referable to this richly colored highland race. The Huánuco Viejo specimens are quite pale and ochraceous in coloration, with less vinaceous and more buffy tone even than *albicans*. They are in rather worn plumage but are comparable to October and November examples of *albicans* from Chinchao to which they do not bear particular resemblance. A June specimen from the mountains near Huánuco is somewhat paler than the average of *puna* and may represent the fresh condition of the coloration exhibited by the Huánuco Viejo specimens.

None of my series of *puna* is very large. Wing measurements of the males vary between 52 and 55 mm.; tail 42 to 48½ mm. The males of *albicans* from northern Peru (cf. account of *albicans*) have wing measurements of 50–56 mm.; tail 39–46 mm. Ecuadorian examples are a little smaller. Males of *audax* at hand have the wing varying between 51 and 55 mm.; tail between 39½ and 42 mm. Evidently size is of minor value in distinguishing these races in Perú, although *puna* sometimes reaches a maximum of 61 mm., wing, and 52 mm., tail (cf. Chapman and Griscom, Bull. Amer. Mus. Nat. Hist., **50**, p. 303, 1924), which is beyond the maximum of any of the other subspecies.

Henicorhina leucosticta hauxwelli Chubb.

Henicorhina leucosticta hauxwelli CHUBB, Bull. Brit. Orn. Club, **40**, p. 156, 1920—Elvira, n. e. Perú; British Mus.

Two adult males, one young male, and two adult females from Huachipa, September 3–October 5, 1922.

Compared with one male, two females, and one bird of dubious sex from Florencia and La Murelia, Colombia; also with a male of

leucosticta from Carimang River, British Guiana (Amer. Mus. Nat. Hist.).

The Peruvian specimens agree with Chubb's short description of *hauxwelli* fairly well except that they are deeper and redder than *leucosticta* but not especially darker. The Colombian examples are essentially the same but are smaller than the Peruvian birds.

The young male from Huachipa is very similar to a young male of *H. leucophrys leucophrys* from Vista Alegre but has shorter legs, a more whitish tone on the throat and breast, less buffy under wing-coverts, a little narrower black band on the upper auriculars, and deeper rufous flanks and back, and has the characteristic white spots on the alula which are lacking in *leucophrys*.

One of the males from Huachipa has the bill curiously twisted and malformed. Another has the brown of the fore part of the mantle continued broadly across the center of the hind neck to the occiput and thence across the center of the crown and forehead as narrow brown tips on the feathers, showing an approach to some of the characters of *H. l. prostheleuca*.

Curiously enough, I found no *leucophrys* at Huachipa nor did I find *hauxwelli* at Vista Alegre, although these two localities are just across the narrow Chinchao River from each other. However, from Huachipa the tropical forest extends northward down the Huallaga Valley while from Vista Alegre the hills rise into the subtropical zone, so, although the river can not possibly form an effective barrier to keep these species apart, the tendency may be for each to keep very precisely within its own zonal limits.

Henicorhina leucophrys leucophrys (Tschudi).

Tr(oglodytes) leucophrys TSCHUDI, Arch. Naturg., **10**, (1), p. 282, 1844—Perú; Mus. Neuchâtel.

Two females and one young male from Vista Alegre, September 1–October 16, 1922; a female from Chinchao, November 5.

Compared with a male and female from Uchco, a female from Molinopampa, and eleven skins from Bogotá, Andalucia, and Subía, eastern Colombia, and Páramo de Tamá, Colombia and Venezuela.

The series shows considerable agreement and considerable variation and it is difficult to distinguish any separable units in it. Tschudi's original description specifies a bird with blackish edges to the feathers of the throat. This character is noticeable in all but the Vista Alegre and Chinchao birds, being especially prominent in the series from Páramo de Tamá and the male from Uchco, Perú (which

is more like the Páramo de Tamá specimens in this and other respects than it is like the female from Uchco). I do not know the exact locality whence Tschudi secured his specimens of the species. He notes it as occurring in northeastern Perú in the "Urwald" but the farthest north that he reached in that kind of country was the Chanchamayo Valley. Of all the specimens at hand, that from Uchco answers best to the original description. Without a large series from various parts of Perú it is impossible to differentiate between the individual and possible racial variations or to suggest a restriction of Tschudi's name to the birds from any particular section of the country.

I found the species about the bushes and undergrowth on the hillsides. Its alarm call was something like "heé-oop, heé-oop, heé-oop," uttered when the bird was disturbed but while it was mostly concealed. I never found it in full song, although its performance has been eulogized by various early travelers. Once only, at Chinchao, I heard a short but remarkably sweet and musical song whose author could not be approached very closely along the treacherous hillside and I was unable to identify it. I was told by a Peruvian that it was the famous "Organista." The name was well applied since there was a certain organ-like quality of tone which gave the song a peculiar richness.

Mimus longicaudatus longicaudatus Tschudi.

M(imus) longicaudatus TSCHUDI, Arch. Naturg., **10**, (1), p. 280, 1844—Perú, Mus. Neuchâtel.

Mimus peruvianus PEALE in WILKES, U. S. Expl. Exped., **8**, p. 87, 1848—Callao, Perú; U. S. Nat. Mus.

Mimus leucospilus PELZELN, Sitzb. Akad. Wien, **31**, p. 324, 1858—"Chile," errore = Perú; Vienna Mus.

Mimus nigriloris LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., **10**, p. 137, 1871—"Mexico," errore = Perú; Amer. Mus. Nat. Hist.

A female from Chosica, April 15, 1922.

Compared with four males from Menucucho, Perú.

The Menucucho specimens are badly worn (February and March) and the Chosica bird is in full molt but the combined series seems to represent but a single form of which the Chosica example is probably nearly topotypical.

It is probable that this form is a representative of *M. thenca* of Chile, of which I have examined a series of thirteen skins, but I

prefer to keep them specifically distinct until I have seen more Peruvian material, since there are certain characters that seem to be constantly different in the two groups.

I found this mockingbird sparingly in the thickets along the hillsides above the Rimac River, but it was shy and elusive and usually gave me but a flash of white-tipped tail as it disappeared into hiding.

Myiadestes ralloides ralloides (D'Orbigny).

Muscipeta ralloides D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 322, 1839—Chulumani, Bolivia; Paris Mus.

Pt(ilogonys) griseiventer TSCHUDI, Arch. Naturg., **10**, (1), p. 270, 1844—Perú; Mus. Neuchâtel.

An immature female from Chinchao, November 17, 1922.

Compared with two adults of *venezuelensis* from Colombia.

Without adult specimens from Chinchao or near-by localities, it is impossible to fix the identity of this immature bird or to determine the validity of Tschudi's *griseiventer*, which does not appear to have been recognized in recent years as distinct from *ralloides*.

Turdus fuscater gigantodes Cabanis.

Turdus gigantodes CABANIS, Journ. Orn., **21**, p. 315, 1873—Maraynioc, Perú; ♀; Berlin Mus.?

Three males and two females from the mountains near Huánuco, 10,500 feet, June 1–16, 1922; an immature male from Cullcui, Marañón River, December 10.

Compared with twenty-one additional skins from Macate, Balsas, Hacienda Llagueda, Hacienda Limón, Molinopampa, and Chachapoyas, northern Perú, and from Chical, Cochaseca, and Hoyaucshi, Ecuador; also with two skins of *quindio* from Santa Isabel and Paramillo, Colombia.

The Peruvian and Ecuadorian series seems to be indivisible although several of the Ecuadorian birds show an approach toward *quindio*.

These large thrushes were common in the temperate zone above Huánuco in company with *Turdus chiguanco*, from which they were distinguishable in the field chiefly by their larger size and darker coloration.

Turdus ignobilis debilis Hellmayr.

Turdus ignobilis debilis HELLMAYR, Journ. Orn., **50**, p. 56, 1902—Rio Madeira, Brazil; Vienna Mus.

A male and a female from Vista Alegre, October 17, 1922.

Compared with six examples from Moyobamba, Lagunas, and Yurimaguas, northern Perú.

The Vista Alegre skins are a trifle darker and grayer on the back and breast but hardly separable from the more northern birds. The present race is the only one recorded from Perú.

The species was noted only among the scattered trees of the more or less open hillsides adjacent to the humid tropical forest but not within the forest itself. As it was not found at higher elevations in similar country it seems to be referable to the tropical zone fauna.

Turdus chiguanco chiguanco D'Orbigny.

Turdus chiguanco D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 201, 1836—near Tacna, 2,000 m. up to Palca; Paris Mus.

Turdus conradi SALVADORI and FESTA, Boll. Mus. Torino, **14**, No. 367, p. 4, 1899—Sigsig, Ecuador; Turin Mus.

Two males, an adult female, and an immature female from Matucana, April 29–May 2, 1922; a male from La Quinua, May 16; two males from above Huánuco, 6,500–10,500 feet, August 4 and June 10; a male from Huánuco Viejo, December 22; a male from Cullcui, Marañón River, December 15; a female from Chinchao, November 8.

Compared with twenty-five other skins from Perú (Moquegua, Cocachacra, Macate, Hacienda Llagueda, Cajamarca, Río Utcubamba, and Chachapoyas) and four from Ecuador (Chimborazo, El Paso, and Loja) (eight skins in Amer. Mus. Nat. Hist.).

Three males and a female from Moquegua and Cocachacra should represent typical *chiguanco*. They are paler with more pure white on the lower belly and crissum than most of the central and north-Peruvian birds, but they are nearly matched, except in size, by the Cullcui and Huánuco Viejo specimens and even more closely by several Ecuadorian examples representing *conradi*. The skins from the other localities show considerable variation in both size and color without regard to distribution.

D'Orbigny (Voy. Amér. Mérid., Ois., pp. 201, 202, Oct., 1838) notes the occurrence of his *chiguanco* from sea level up to Palca which is at an elevation of 2,740 meters, as high as Matucana where I took a large dark specimen. Higher in the mountains south of Tacna, at Putre, C. C. Sanborn secured a specimen which is also large and is the darkest and grayest of the series before me, probably

representing an approach toward *anthracinus*. Berlepsch (MS.) notes a female from Ica, with wing 131 mm. and tail 113½ mm., which he describes as gray, less brownish than Huira examples. If a specimen from the moderate elevation of Ica agrees with north-central Peruvian birds, the assignment of Moquegua and Tacna examples to a different lowland race, distinct from *conradi*, seems problematical. If such a race is maintained, most of my Peruvian birds will be unidentifiable.

These birds are very like the American Robin in actions and not radically unlike it in song though recognizably distinct.

Hylocichla ustulata swainsoni (Tschudi).

Merula Wilsonii SWAINSON (nec *Turdus wilsoni* BONAPARTE) in SWAINSON and RICHARDSON, Faun. Bor.-Amer., 2, p. 182, Febr., 1832—Carlton House (on the banks of the Saskatchewan), lat. 53°; type in coll.?

T(urdus) swainsoni TSCHUDI, Faun. Per., Aves, p. 28, 1845—new name for *Merula Wilsonii* SWAINSON (a specimen collected by Cabanis in New Jersey is only incidentally described on page 188, 1846).

Two females from Chinchao, October 26 and 31, 1922.

Compared with a series from North America.

These birds were found in a small patch of second-growth trees on the mountain side, in conditions rather humid than arid. They were silent and shy. Both are referable to the eastern race, *swainsoni*.

Anthus bogotensis immaculatus Cory.

Anthus bogotensis immaculatus CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 345, 1916—mountains east of Balsas, Perú; Field Mus. Nat. Hist.

Two males from the mountains above Huánuco, 12,200–12,500 feet, June 12 and 21, 1912.

Compared with the type of *immaculatus* and a specimen of *bogotensis* from Páramo de Tamá, Venezuela, both males.

The characters given in the original description of *immaculatus* do not hold completely for all three skins at hand from Perú, since both Huánuco birds have well-marked flank streaks (perhaps not quite so broad as in *bogotensis*); even the type has traces of shaft lines on the lower flanks. Above, the dusky centers of the feathers are a very little narrower than in the Venezuelan skin, and the pale margins are a little brighter buff and a trifle wider, but the differences are so slight as to appear unlikely to hold in a large series. However,

additional characters not mentioned by Cory appear to be present in more sharply defined pale inner margins of the remiges and in dusky inner margins of the outermost rectrices, which likewise may not hold in a series.

It is possible that *Anthus rufescens* D'Orbigny and Lafresnaye (nec Temminck, 1820), Mag. Zool., 7, cl. 2, p. 27, 1837, from the Yungas of La Paz, Bolivia, belongs here, though it was described as having longitudinal streaks on the flanks. I have no Bolivian material.

Anthus furcatus brevirostris Taczanowski.

Anthus brevirostris TACZANOWSKI, P. Z. S. London, 1874, p. 507—Junín, Perú; Warsaw Mus.

Two females from Huánuco Viejo, December 21, 1922.

Compared with four males from Puno, Perú, two males of *furcatus* from Argentina (Las Rosas, Santa Fé, and Torrecito, Buenos Aires), and a series of thirty-one skins from Concepción, Tucumán, Argentina.

It is with difficulty that I can recognize in this material the form *brevirostris* which Taczanowski later synonymized with *furcatus* and which Hellmayr (Hornero, 2, p. 182, 1921) revived. Peruvian birds may have a slightly more rufescent tone on the rump than typical *furcatus* and they seem to have a little more white on the two outer pairs of rectrices, though the latter character is not constant. The specimens from Concepción, Tucumán, are equivocal and while most of them show the black and white markings of the tail as in *furcatus*, the color of the rump varies between that of *furcatus* and that of *brevirostris*. The color of the breast and belly and the shape of the bill seem to have no significance.

This pipit was found only on the high plains where, in December, it occurred in vagrant flocks.

Vireosylva virescens chivi (Vieillot).

Sylvia chivi VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., 11, p. 174, 1817—based on AZARA; Paraguay.

A female from Vista Alegre, August 25, 1922; a male and female from Huachipa, September 19 and 24.

Compared with a male from Paraguay; nine males and two females from Misiones, Argentina; a male and two skins of doubtful sex from Matto Grosso, Brazil; a male and female from Bolivia; and a male from San Ramón and two females from Hacienda Limón,

Perú; also with twenty-five skins of *agilis* from the states of Bahia, Maranhão, Piauhy, Amazonas, and Ceará, Brazil; four males and a female of *vividior* from Trinidad, British Guiana, and Lake Valencia, Venezuela; two Bogotá skins of *caucae;* and a large series of *virescens* from North America.

The Peruvian birds are not typical of *chivi* but, together with the Bolivian and Matto Grosso specimens, are duller above and below than the Paraguayan and Argentine examples. However, the latter are mostly in better plumage than the Peruvian birds and the apparent differences may not be sustained by a larger series of the latter in more comparable condition, which I would like to see before describing the variations in detail.

I do not believe that *chivi* and *virescens* can be maintained as distinct species. The supposed differences in the length of the first primary in relation to the fourth and fifth primaries (from outside) are bridged by individual variation. Although I have seen no *chivi* subspecies with the first primary as long as the fourth and no *virescens* with the first shorter than the fifth, there are specimens at hand of both groups in which the first and fifth are subequal. Pattern and general coloration show no specific differences.

Vireosylva leucophrys leucophrys (Lafresnaye).

Hylophilus leucophrys LAFRESNAYE, Rev. Zool., 1844, p. 81—Colombia; Mus. Comp. Zool.

A male from Chinchao, November 6, 1922.

Compared with two skins from Colombia and one from the Río Chama, near Mérida, Venezuela.

The Chinchao bird is inseparable from the northern specimens which appear to be typical *leucophrys*. The species is badly in need of revision by someone with an abundance of material.

Vireolanius leucotis subsp.?

Malaconotus leucotis SWAINSON, Anim. in Menag., p. 341, 1838—"Africa," errore = Guiana?

One male from Huachipa, September 21, 1922.

Compared with a specimen from the lower Huallaga River (U. S. Nat. Mus.).

The correct determination of the Huachipa specimen must await a revision of the entire species for which the material is not available. The skin agrees with the descriptions of both *mikettae* (w. Ecuador)

and *simplex* (Rio Tapajoz), as does a skin from Perené, judging by Chapman's account (Bull. Amer. Mus. Nat. Hist., **55**, p. 590, 1926). The example from the lower Huallaga appears to be closest to typical *leucotis*, having considerable white on the sides of the head, though whether as a mid-auricular stripe or as a white tip on the superciliaries it is difficult to say owing to the very poor condition of the specimen. Chapman (l. c.) records two birds from eastern Ecuador, one of which is said to have a white auricular streak that is practically absent in the other; my Huachipa bird has only a faint suggestion of grayish white at the lowest point of the yellow subocular spot. *V. bolivianus* from Bolivia and the Marcapata District of southeastern Perú is said to have the forehead distinctly blackish which is not the case in the Huachipa bird.

It thus appears that my specimen is most closely allied to *simplex* (which I have not seen) although the nearest locality from which that form is recorded is northern Matto Grosso. In view of these puzzling facts I must let the problem await further study.

The specimen was taken from a vagabond troop of mixed species in the dense tropical forest.

Cyclarhis gujanensis saturatus Zimmer.

Cyclarhis gujanensis saturatus ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., **12**, p. 107, 1925—Cullcui, Marañón R., Perú; Field Mus. Nat. Hist.

One male (the type) and two females (one immature) from Cullcui, Marañón River, December 11 and 13, 1922.

Compared with eleven specimens of *gujanensis*, *contrerasi* and *virenticeps* as specified in the original description.

These birds were found in the bushes along the steep hillsides bordering an affluent of the Marañón, in conditions more arid than humid subtropical. They preferred to keep in concealment rather than to expose themselves at the edges of the thickets.

Coereba luteola chloropyga (Cabanis).

C(erthiola) chloropyga CABANIS, Mus. Hein., **1**, p. 97, 1851—Bahia; Halberstadt Mus.

Three males and two females from Chinchao, October 23–November 14, 1922; two males and two females from Vista Alegre, August 30 and 31 and October 16; one male and one female from Huachipa, September 28 and October 3; and one male from Hacienda Buena Vista, Río Chinchao (E. Heller, collector), September 15.

Compared with fifteen specimens from Bahia, Ceará, Minas Geraës, Pará, and Maranhão, Brazil, and Santa Cruz, Bolivia; also with seven specimens of *magnirostris* from Bellavista, Huancabamba, Perico, and Cajamarca, Perú (Mus. Comp. Zool. and Field Mus. Nat. Hist.); and with four examples of *intermedia* from Moyobamba, four of *alleni* from Matto Grosso, five of *columbiana* from Colombia, two of *guianensis* from British Guiana, and four of *minima* from eastern Brazil.

The Expedition series is not satisfactorily separable from the Brazilian specimens of *chloropyga*. Together with the Bolivian skin they show minute average differences in the blacker (less brownish) head, grayer or more olivaceous (less brownish) back, and greener (less ochreous) yellow rump, but the characters are very slight. Some specimens in each series are indistinguishable from each other. The two series seem to be segregated by the interposition of *alleni* in Matto Grosso so that subspecific distinction would be very plausible, but I am unable to find sufficient characters on which to propose such a separation.

A slight indication of transition toward *intermedia* (of n. Perú and e. Ecuador) is found in several of my specimens in which the grayish margins of the primaries are slightly widened and more whitish than usual, but the same tendency is noticeable in some of the east-Brazilian birds.

The species was common, usually in flocks, about the trees and shrubs in flower on the hillsides and at the edge of the forest in the tropical and subtropical zones.

Diglossa sittoides decorata nom. nov.

Diglossa sittoides intermedia CORY (nec *D. intermedia* CABANIS, 1851), Field Mus. Nat. Hist. Publ., Orn. Ser., 1, No. 7, p. 292, 1913—Cajamarca, Perú; Field Mus. Nat. Hist.

An adult male, two immature males, and a female from Chinchao, October 30–November 6, 1922, and an immature male from Huachipa, September 28.

Compared with the type of Cory's *intermedia*, from Cajamarca, and with four males and a female from the Urubamba Valley (U. S. Nat. Mus.); also with ten examples, mostly males, of *d'orbignyi*[1]

[1] Boissonneau's name, *d'orbignyi*, should, I think, be applied to the Bogotá form often known as *similis*. Boissonneau gave the measurements of his species as 12 cm. total length and 8 cm. for the bill, which Chapman (Bull. Amer. Mus. Nat. Hist., 37, p. 580, 1917) thinks are too large to apply to this race of *sittoides*. However, I have seen skins from Venezuela which measure 11.8 cm. as made up

from Colombia and Venezuela (four in Carnegie Mus.) and four specimens of *sittoides* from Bolivia (two in U. S. Nat. Mus. and two in Amer. Mus. Nat. Hist.).

The name *intermedia* is preoccupied by Cabanis's earlier usage, which necessitates renaming the Peruvian race or dropping the supposed subspecies. If the sole criterion were the type specimen, it perhaps would be better to submerge the name entirely. The type is much paler below than any other Peruvian specimen I have seen but it is in abraded plumage and has the appearance of being faded and abnormal. Hellmayr (MS.) has noted specimens from Cajabamba, Succho, and Santiago, northern Perú, which are considerably more deeply colored than the type, and Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 637, 1926), while referring certain Ecuadorian specimens to *intermedia*, states that their color is much like typical *sittoides* from Bolivia.

However, there are certain characters found in Peruvian specimens which may entitle them to continued separation from *sittoides*. They are slightly smaller than that form (wing of males, 56–59 mm. instead of 61–68 mm.), being about the size of *d'orbignyi*, and are a trifle paler below than either of the others. The forehead and anterior part of the crown are usually conspicuously lighter and brighter than the back, whereas in *sittoides* the area is about uniform with the back and in *d'orbignyi* somewhat darker. The two innermost tertials have on their outer webs a conspicuous, broad, buffy white or buff spot occupying about one-third the length of the feather. This is bleached to nearly white in the type and largely worn off but it is still recognizable as having been of the same character. The spot is sometimes suggested in the adjacent forms but in most cases these have the tertials edged only with gray like the secondaries, perhaps with a little white or buffy white near the tip, never as pronounced as in the Peruvian birds.

Specimens from the Urubamba region are larger than those from central and northern Perú, thus approaching *sittoides*, but they retain the bright forehead and the spots on the tertials of the central Peruvian examples. With these characters thus apparently fixed as the real racial criteria (instead of the abnormally pallid under parts of the type), I believe the subspecies may still be maintained under the new name *decorata*.

and a stretched skin could easily exceed Boissonneau's measurement; the length of the bill as given is actually less than in the skins I have handled of this form. The description fits the female of this bird fairly closely and much better than it does any other member of the genus.

These birds were found in small flocks in the open woods and at the edges of the clearings, and in trees along the roadsides in the subtropical and upper tropical zones. They were extremely active and very warbler-like in behavior.

Diglossa carbonaria brunneiventris Lafresnaye.

Diglossa brunneiventris LAFRESNAYE, Rev. Zool., 1846, p. 318—Perú; Paris Mus.?

One male and one female from La Quinua, May 9, 1922; six males and three females from the mountains near Huánuco, 10,500–12,200 feet, May 31–June 16; one male from Panao, July 15; one male and one female from Cullcui, Marañón River, December 13 and 16.

Compared with nine examples from Balsas, Limbani (Carabaya), Ollantaytambo, and Torontoy, Perú, and Paramillo, Colombia (Amer. Mus. Nat. Hist. and Field Mus. Nat. Hist.).

The series is somewhat variable in coloration without respect to locality. The tone of rufous on the belly is found in various hues, sometimes with fine grayish margins on the abdominal feathers; the amount of gray on the flanks and upper tail-coverts is not constant; the rufous malar stripe is sometimes incomplete, not reaching the bill; the development of a grayish superciliary stripe is irregular; several specimens show broad grayish tips on the lower margin of the black gular patch, not apparent in the others. Evidently this race, which I consider the most ancient member of the species, is subject to the greatest amount of variation, which may account for its having produced such widely differentiated forms as *aterrima* and *carbonaria*. This I have discussed in greater detail elsewhere (Auk, 46, p. 28, 1929).

Des Murs (Iconog. Ornith., Lief. 8, p. 43, text, 1847) says that the type of *brunneiventris* was collected in Chile by Gay and presented to the Paris Museum, but Gay makes no mention of it in his work on the natural history of Chile. Hellmayr (Arch. Naturg., 85, A, (10), p. 11, 1920) suggests that the type may have come from Bolivia.

These birds were common inhabitants of the woods in the temperate zone, both in the deeper portions and at the edges of the clearings. They were noted commonly associated with the other members of the mixed vagabond flocks.

A curious fact, noted first in the present species but found afterwards in every member of the genus collected, was that most of the

subcutaneous layers of fat were quite stiff, of the consistency of cream cheese, and but little oily, and could be lifted with the forceps and peeled freely from the skin.

Diglossa lafresnayii pectoralis Cabanis.

Diglossa pectoralis CABANIS, Journ. Orn., **21**, p. 318, 1873—Maraynioc, Perú; Berlin Mus.

One male and two females from above Huánuco, 12,200 and 12,500 feet, June 12–28, 1922.

Compared with two specimens of *unicincta*, three of *albilinea*, the type of *mystacalis*, seven skins of *lafresnayii*, and eight of *gloriosissima*, all of which I consider to be races of *lafresnayii*.

The characters and relationships of this interesting bird have been discussed in detail in a former paper (Auk, **46**, pp. 21–37, 1929).

The specimens were taken in the dense mossy forest of the cloud belt, in the pockets at the heads of the ravines. The birds were not common.

Diglossa cyanea melanopis Tschudi.

D(iglossa) melanopis TSCHUDI, Arch. Naturg., **10**, (1), p. 294, 1844—Perú; Berlin Mus.

Diglossa personatus TSCHUDI (nec *Agrilorhinus personatus* Fraser), Faun. Per., Aves, p. 237, 1846—part, N. (=C.) Perú.

Four males and two females from the mountains near Panao, July 3 and 4, 1922.

Compared with a male and female from Molinopampa, a male from Uchco, and thirteen skins of typical *cyanea* from Ecuador, Colombia, and Venezuela.

The Peruvian birds are consistently larger than the Colombian and Venezuelan skins and, with one exception, are larger also than the Ecuadorian specimens. They are also darker and duller blue, except for the crown which is lighter. The under tail-coverts are less strongly tipped with white than in *cyanea*, but are not entirely without white as is said to be the case in Bolivian examples.

Tschudi's type locality, "N. Peru," must mean some region no farther north than Cerro de Pasco, the point farthest in that direction reached by Tschudi in his travels through Perú.

Resurrection of the name *cyanea* for this species is necessary since it has distinct priority over Fraser's *personatus*. Fraser's paper was read before the Zoological Society of London on February 25, 1840,

but it was not published in the Proceedings of that society until July of the same year, whereas Lafresnaye's independent description was published in the Revue Zoologique in April. Gray (Gen. Birds, 1, p. 137, 1846) properly uses the name *cyanea* while Sclater (P. Z. S. London, 1855, p. 138) gives preference to Fraser's name by citing the date on which it was read, meanwhile accepting the date of Lafresnaye's paper as April 1.

If the genus *Diglossopis* is to be recognized, this species must be referred to it (cf. account of *D. caerulescens pallida*).

These birds were found in small flocks in the woodland of the temperate zone.

Diglossa caerulescens pallida (Berlepsch and Stolzmann).

Diglossopis caerulescens pallida BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 334—"Peruvia alta centrali et septentrionali" = Garita del Sol; Warsaw Mus.

Three males and one female from Chinchao, November 2–20, 1922.

Compared with a small series of *saturata* from Colombia and western Venezuela.

The Peruvian birds differ from *saturata* by their larger size, grayer blue upper parts, much paler (more ashy and less bluish) under parts, and slightly straighter, less recurved, culmen. There is an apparent break in the distribution of the species, since no form has been recorded from Ecuador. Sclater's inclusion of that country in his distributional synopsis (Cat. Birds Brit. Mus., 11, p. 12, 1886) is evidently a mistake since he records no specimens from Ecuador and stated somewhat earlier (Ibis, 1875, p. 221) that he had seen none from the country in question. Recent observers have not been any more fortunate.

I have included this species in the genus *Diglossa* owing to inability to recognize a clearly defined and separable genus *Diglossopis*. The hook of the bill is but little less pronounced in this species than in *Diglossa cyanea*, the culmen is variably recurved in the different races, the relative lengths of the exposed culmen and the lateral outline of the mandible are alike in the two species mentioned, and the outline of the gonys is the same. Between *D. major* and the extremes of individual variation in *cyanea* there is little difference in the characters mentioned and they are carried only a step farther in the *lafresnayii* group. Any separation of these four species from each other on the basis of characters found in the shape of the bill would

be purely arbitrary since there is a gradual transition from the straighter, less hooked bill of *caerulescens* to the recurved and strongly hooked bill of *lafresnayii*. Whatever disposition may be made of the genus *Diglossopis*, therefore, these four species would have to go together.

On the other hand, *lafresnayii* is distinguishable from various other members of the genus *Diglossa* only by characters which appear to be of no more than specific value. Consequently it seems best to recognize only the single genus which, without subdivision, is compact and distinct but which, if divided at all, will require to be broken up into a number of poorly defined genera, none of which will be perfectly isolated.

The specimens secured by the Expedition were found in the humid temperate forest in company with other birds high in the trees.

Conirostrum sitticolor cyaneum Taczanowski.

Conirostrum cyaneum TACZANOWSKI, P. Z. S. London, 1874, p. 512—Sillapata, Perú; type formerly in Warsaw Mus., now lost.

One male and two females (one adult and one young) from above Panao, July 5 and 10, 1922.

Compared with two males from Balsas and Molinopampa; also with a male of *intermedium* from the Mérida region, Venezuela, and three skins of *sitticolor* from Bogotá.

The Panao birds agree well with the description of *cyaneum* although both adults have the upper throat dull blackish, which, apparently, is not the case in typical *cyaneum*. The Balsas male has this blackish coloration deeper and more extended while the Molinopampa specimen has the whole throat and chest, except the narrow lower border of the latter, rich glossy black. These two examples show a decided approach toward *sitticolor* of Colombia in this respect and also by having the superciliary stripes short and terminated anteriorly at the posterior corner of the orbits, whereas in the Panao specimens the stripes extend past the middle of the orbits. The Balsas and Molinopampa skins show some resemblance to *intermedium* from Venezuela, although that race is smaller and has the superciliaries as long as in typical *cyaneum;* thus they stand at a point in the midst of the three races, showing some characteristics of all of them.

Conirostrum cinereum littorale Berlepsch and Stolzmann.

Conirostrum cinereum littorale BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 336—Lima, Perú; Warsaw Mus.

A male from Matucana, May 2, 1922; a male from La Quinua, May 15; a young male from Huánuco, 12,200 feet, June 19; a male and two females from Cullcui, Marañón River, December 11–16.

Compared with seven males and two females from Pica, Tarapacá, Chile; a male from Chacalluta, Tacna, a female from Cajamarca, and a female from Macate, Perú.

There is considerable variation in size, with the smallest measurements found in the Matucana specimen, which agrees in that respect with other specimens from the coastal region of Perú and northern Chile. The Cullcui skins exceed the wing measurements of *cinereum* as given by Hellmayr (Arch. Naturg., 85, A, (10), p. 13, 1920), but lack the strongly marked dusky cap and grayish breast of the typical race, although both characters are suggested in some of the series.

Conirostrum ferrugineiventre Sclater.

Conirostrum ferrugineiventre SCLATER, P. Z. S. London, 23, p. 74, pl. 85, 1855—Bolivia; Derby Mus., Liverpool.

A female from the mountains near Huánuco, 12,200 feet, June 18, 1922.

No material for comparison.

This bird agrees well with Sclater's original description and with the more detailed one given by Taczanowski (Orn. Pér., 1, p. 424, 1884), being nearer to the measurements of the type than to Taczanowski's male.

The present locality extends the known range of the species somewhat to the northward, since it has been recorded only from Maraynioc, Torontoy, and Ccachupata in Perú and from various localities in Bolivia.

The nearest relative of this bird seems to be *Conirostrum rufum.*

Dacnis lineata (Gmelin).

M(otacilla) lineata GMELIN, Syst. Nat., 1, (2), p. 990, 1789—Cayenne; based on "pitpit a coiffe bleue" of BUFFON.

Dacnis angelica BONAPARTE, Atti Sesta Riun. Sc. Ital., p. 404, 1845—Brazil.

Dacnis melanotis STRICKLAND, Contr. Orn., 1851, p. 16—Cayenne and Demerara.

D(acnis) arcangelica BONAPARTE, Bull. Soc. Linn. Normandie, Caen, 2, p. 31, 1857—Bogotá.

Dacnis modesta CABANIS, Journ. Orn., 21, p. 64, 1873—Monterico, Perú; ♀; Warsaw Mus.

Two adult males, one young male, and one female from Vista Alegre, August 24–October 15, 1922, and three young females from the Río Colorado, Chanchamayo Valley, January 31–February 7, 1923.

Compared with fifty-one other specimens (in Field Mus. Nat. Hist., Amer. Mus. Nat. Hist., and Acad. Nat. Sci. Philad.) from Nuevo Loreto and Moyobamba, Perú; Río Napo, Zamora, San José, Río Suno, Macas region, and Río Upano, Ecuador; Cuembi, Bogotá and La Murelia, Colombia; Tamanoir, Pied Saut, and Cayenne, French Guiana; Nova Olinda, Caviana, Pará, Falls of the Rio Madeira, Panda Rapids (Rio Teodoro), and Tonantins, Brazil; and Mapiri, Bolivia.

Throughout this series I am unable satisfactorily to separate any recognizable subspecies. The greenest example is one from the Napo, Ecuador; the deepest blue is one from Vista Alegre; the rest vary between these extremes without any regularity. Peruvian birds may average a little larger, but the distinction is of doubtful value. The tone of blue is extremely variable according to the angle of incidence of the light so that comparisons are sometimes difficult except under most favorable conditions. In any case, enough specimens from the various regions can be matched with each other to make any separation purely arbitrary.

I see no reason for rejecting Gmelin's name *lineata*. The forehead, sides of the head and neck, and the mantle of this species are, in certain lights, a distinct though very dark violet blue, which agrees with Buffon's account of a "cape d'un beau bleu brillant et fonce"; the remainder of his description also agrees with the species. Latham translated Buffon's description verbatim, but Gmelin attempted to abbreviate it and mixed the two types of blue into a confused account; probably he had never seen a specimen. His reference to Buffon and Latham serves to identify the species to which he applied the first valid name.

Cyanerpes caerulea microrhyncha (Berlepsch).

Coereba caerulea microrhyncha BERLEPSCH, Journ. Orn., 1884, p. 287—Bucaramanga, Colombia; coll. Berlepsch, in Frankfort Mus.

An adult female from Vista Alegre, October 15, 1922, and a young male from Puerto Bermúdez, March 10, 1923.

Compared with a small series from Moyobamba, Perú; "Bogotá," Colombia; and Buenavista, Bolivia; also with specimens of *chocoana*

from Río San Juan, Colombia, *caerulea* from Utinga, Brazil, and the three Guianas, and *longirostris* from Trinidad.

Within the series of *microrhyncha* there is a little variation which may have some racial significance, but the material at hand is not sufficient to settle the matter definitely. A Bolivian female differs from Peruvian females by reason of duller green upper parts; brownish ear-coverts without a greenish suffusion, except on the lower border in continuation of the blue malar stripe; and the breast and flanks without a trace of blue in the grass green margins of the feathers, which here are sharply defined from the white shaft stripes. The Peruvian females all have decidedly greenish auriculars and usually prominently bluish margins on the feathers of the breast and flanks, while the general tone of coloration above is brighter than grass green. The young male from Puerto Bermúdez is like the Bolivian female in respect to the brownish auriculars and lack of blue on the breast, but the general tone of coloration is a little brighter than that of the Bolivian bird. One of the Moyobamba females is less bluish on the breast than the others but in most respects resembles them. The Bogotá females have no green on the auriculars, which are colored like the throat, and the breast is less distinctly marked with bluish than in the Peruvian examples, but the tone of green is the same and brighter than in the Bolivian bird.

However, before suggesting the separation of a Peruvian race, I would like to see much more material, including a series of males from various localities; all but one of the present series are females.

Parula pitiayumi alarum (Chapman).

Compsothlypis pitiayumi alarum CHAPMAN, Amer. Mus. Novit., **143**, p. 2, 1924—Chaupe, e. of Huancabamba, Perú; Amer. Mus. Nat. Hist.

One adult male, one supposed male, also adult, and one young male from Chinchao, October 28 and November 7, 1922.

Compared with two skins of *melanogenys* from Santa Ana and Garita del Sol, Perú; fifteen skins of *pitiayumi* from Uruguay, Argentina, and southeastern Brazil; and nineteen skins of *elegans* from Venezuela, British and Dutch Guiana, and Colombia.

These specimens seem to agree better with the description of *alarum* than with that of *melanogenys*, especially in the length of wing, although they are intermediate in coloration. The wing bar on the greater coverts is as large as in many specimens of *elegans*

but that on the middle coverts is much reduced, being represented by a fine, more or less obsolete, white terminal point, an ashy blue subterminal area, and an irregular central shaft spot of white. Both adults have the wing 60 mm. in length. The general coloration is not appreciably different from that of *elegans* except that the black loral spot is duller and extends less below the eye. The young bird is colored like the adults except that the remiges and rectrices are somewhat brownish, with their outer margins duller blue, slightly tinged with greenish.

If the International Rules of Zoological Nomenclature are to be followed with their recommendations, it is necessary to revert to the name *Parula* for this genus, since an earlier *Parulus* does not preoccupy *Parula*.

Dendroica cerulea (Wilson).

Sylvia cerulea WILSON, Amer. Orn., 2, p. 141, pl. 17, fig. 5, 1810—Pennsylvania.

A female and two young males from Huachipa, September 30-October 3, 1922; a female and a nearly adult male from the Río Colorado, Chanchamayo Valley, February 4–16, 1923.

Compared with North American specimens.

The Río Colorado male still retains the greenish primaries and secondaries, the pointed rectrices, and the yellowish-tinged rump of immaturity, but otherwise it has acquired adult dress.

The February birds were noted as giving their characteristic song; the September and October birds were not singing.

Wilsonia canadensis (Linnaeus).

(*Muscicapa*) *canadensis* LINNAEUS, Syst. Nat., ed. 12, 1, p. 327, 1766—based on BRISSON'S *Muscicapa canadensis cinerea;* Canada.

A male and female from Huachipa, October 1 and 4, 1922; a female from Vista Alegre, October 13; a male and two females from Chinchao, October 29–November 14.

Compared with North American examples.

In its winter quarters, the Canada Warbler has the same general habits that it shows in its northern travels. At Huachipa it was found in the depths of the forest; at the other localities it was in open woods.

Myioborus verticalis verticalis (D'Orbigny and Lafresnaye).

S(etophaga) verticalis D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 50, 1837—Ayupaya, Bolivia; Paris Mus.

A male and a female from Huachipa, September 11 and 12, 1922. Compared with a male from Bolivia, and a male and two females from Hacienda Limón, near Balsas, Perú; also with a series of *pallidiventris* from Colombia and Venezuela.

The Peruvian and Bolivian birds for the most part show less black at the base of the outer rectrices than *pallidiventris;* one of the Hacienda Limón females has the same amount (20 mm.) as a Venezuelan female on the outer rectrix, decidedly less on the second. The bird with the least amount of black is the Huachipa female; the next is the Bolivian male. A larger series from northern Perú might show that the average was closer to *pallidiventris* than to *verticalis* but with the material at hand the relationship appears to be closer to the typical subspecies.

The depth of color on the breast and belly is variable in both races. The Peruvian specimens average as pale as any of the Venezuelan skins, while the Bolivian bird has a distinct spot of brownish color on the upper breast as in some of the Colombian examples. The Hacienda Limón male has the feathers of the throat broadly tipped with yellow; the same character is suggested in a female from that locality and in the Huachipa female.

Myioborus melanocephalus melanocephalus (Tschudi).

S(etophaga) melanocephala TSCHUDI, Arch. Naturg., **10**, (1), p. 276, 1844—Perú; Mus. Neuchâtel.

An adult male and female and a juvenal male from the mountains near Huánuco, 10,500 feet, June 3–15, 1922; two males and two females from Panao, July 5–8.

Compared with three skins from Molinopampa, Perú.

The Huánuco and Panao specimens show some variation in the tone of yellow on the face and under parts, ranging from near Cadmium Yellow to near Lemon Chrome. One male from Panao has the yellow eye ring complete, although it is continued over the lower anterior portion only by the tiny feathers of the eyelid. The eye ring is connected with the yellow throat by a broad vertical band between the lores and auriculars which is more or less finely tipped with black. In the Molinopampa specimens this vertical band is absent or but faintly indicated, and the black of the lores is not separated distinctly from that of the auriculars but unites with it to form a broad stripe that rather completely interrupts the yellow eye ring. Berlepsch (MS.) notes the variability of this

character in Bolivian specimens, so that an extensive series will be necessary to determine its relative constancy in north-Peruvian birds. The Molinopampa specimens show also a greater posterior extension of the black cap, an absence of pale shaft lines at the base of the auriculars, and less black on the outer margins of the second outer rectrices, but the value of these characters also is in doubt.

One of the Molinopampa birds shows traces of rufous margins on the bases of the central occipital feathers, pointing to relationship with *M. bairdi* which Taczanowski (Orn. Pér., 1. p. 480, 1884; ex Stolzmann) says has identical habits with *melanocephalus* that occurs at Chota and Cutervo but is replaced by *melanocephalus* at Chachapoyas. It seems probable that *bairdi* may prove to be a race of the present species; the ranges of the two seem to be separated by the Marañón River in northwestern Perú, a natural barrier.

A young male in fluffy plumage is washed with brownish above; the cap is darker and more dusky than in the adults; the lores are a little blacker; the sides of the head are like the back, with a few fine, yellow points below the eye; the throat is dull Mustard Yellow; the belly is Naples Yellow x Straw Yellow; the breast is distinctly rufescent (Tawny Olive) with dusky tips; the tail is as in the adult.

Basileuterus tristriatus tristriatus (Tschudi).

M(yiodioctes) tristriatus TSCHUDI, Arch. Naturg., **10**, (1), p. 283, 1844—Perú, probably near Vitoc; Mus. Neuchâtel.

Two males and a female from Chinchao, November 12 and 20, 1922.

No Peruvian material for comparison.

Todd (Proc. U. S. Nat. Mus., **74**, pp. 58 and 59, 1929) has compared these specimens with twenty-four other examples from Perú and southern Ecuador and finds that they are noticeably duller below than the rest of the series, with a close resemblance to *baezae* of eastern Ecuador, though with whiter upper throat. Since typical *tristriatus* apparently occurs both north and south of Chinchao, it is better to consider the differences mentioned as due to extreme individual variation than to attempt the separation of a new race with a circumscribed range, at least until a larger amount of material is available.

This species inhabited the thickets of light second-growth on the hillsides near the upper limits of the humid subtropical zone.

Basileuterus coronatus coronatus (Tschudi).

M(yiodiocles) coronatus TSCHUDI, Arch. Naturg., **10**, (1), p. 283, 1844—Perú (=Chanchamayo Valley, TSCHUDI, Faun. Per., Aves, p. 193, 1846); Mus. Neuchâtel.

A female from Chinchao, November 20, 1922.

No material for comparison.

The specimen has been compared with the type by Dr. Hellmayr and found to agree. It also agrees well with the characters of the restricted subspecies as defined by Todd (Proc. U. S. Nat. Mus., **74**, art. 7, 1929), who examined this specimen and referred it to the typical race.

The bird was taken from among the bushes and ferns surrounding a spring on the steep hillside above Chinchao. It was rather shy.

Basileuterus nigro-cristatus nigrivertex Salvin.

Basileuterus nigrivertex SALVIN, Novit. Zool., **2**, p. 3, 1895—Cajabamba, Suecha, and Huamachuco, n. Perú; British Mus.

Three males from Cullcui, Marañón River, December 10 and 12, 1922.

Compared with a small series of *nigro-cristatus* from "Bogotá" and El Pinon, Colombia, and Páramo de Tamá, Hechisera, and Escorial, Venezuela.

The Peruvian series is separable from the typical race by fairly well marked characters. The color of the back is very slightly brighter and more yellowish green than the average of *nigro-cristatus* although it is matched by a Bogotá skin. The flanks are less deeply tinged with olive and the thighs are more yellowish, less greenish. The bill is more blackish than in some of the typical race but is matched by several specimens from the north. The tone of yellow on the under parts is not consistently different in the two series. The black cap of the Peruvian birds is short, not passing the occiput; in the Venezuelan skins (two males and a female) the feathers on the hind neck have black subterminal bands which continue the color of the cap to the anterior border of the mantle; the Bogotá skins are intermediate in this respect. In the length of tail, however, the Cullcui birds are markedly different from the others, measuring 66½, 67½, and 68 mm., respectively, as against 60½–61 mm. (males), 57–58 mm. (females), and 59–62 mm. (not sexed). Hellmayr (Arch. Naturg., **90**, (2), p. 156, 1925) gives measurements for a large series of Colombian and Venezuelan skins which show the tail to

range from 55 to 64 mm.; Berlepsch (MS.) gives 58–62 mm. for six Bogotá skins and 67 mm. for a bird from Cajabamba, Perú. Apparently the length of tail is a fairly constant character.

I am unable to recognize the genus *Myiothlypis* as restricted to this species. Cabanis (Mus. Hein., 1, p. 17, 1850) originally described the genus as distinguished from *Geothlypis* and gave no characters to distinguish it from *Basileuterus*. Baird (Rev. Amer. Birds, pp. 237, 251, and 252, 1865) supplied certain characters that are shared equally with the species *flaveolus* which he placed in the same genus, remarking that the group was not sharply defined. In shape of bill, length of first primary, length of occipital feathers, and additional characters other than the details of color pattern, some specimens of *nigro-cristatus* and *flaveolus* are exactly matched. Similarly, *flaveolus* is not sharply separated from other members of the genus *Basileuterus* except on characters which are hardly of generic value. Without better definition, I believe it is better to keep the present species in the same genus as *flaveolus* and other related forms.

The species was found at Cullcui in the leafy thickets overhanging a small stream, a tributary of the Marañón River, in a humid temperate "oasis" of the arid temperate region. The birds were alert and active.

Ostinops decumanus (Pallas).

Xanthornus decumanus PALLAS, Spicil. Zool., fasc. 6, p. 1, 1769—Surinam.

Two females from Puerto Bermúdez, March 11, 1923.

Compared with two females from Lagunas and Yurimaguas, northern Perú, and with a series of skins from British Guiana, Venezuela, and Colombia.

One of the Puerto Bermúdez examples is somewhat immature and has an admixture of yellowish feathers on the thighs and carpal edges of the wings; the other is without any yellow except in the tail, being like the rest of the series. The status of the Puerto Bermúdez birds with reference to *maculosus*, which is said to occur in the Urubamba region, is impossible to determine without more material.

Ostinops angustifrons alfredi (Des Murs).

Cassicus Alfredi DES MURS in CASTELNAU, Expéd. Amér. Sud, Ois., p. 67, pl. 19, fig. 2, 1856—Santa Ana, Perú; Paris Mus.

A female from Vista Alegre, August 18, 1922.

Compared with a male and female from San Ramón and a female from Pozuzo, Perú; also with four *angustifrons* from the Río Suno,

Ecuador (Amer. Mus. Nat. Hist.); one *neglectus* from La Azulita, Venezuela; two males and a female of *oleagineus* from Maracay, Venezuela; a male and female of *salmoni* from near Salento, Colombia; two males of *atrocastaneus* from Esmeraldas and Huigra, Ecuador; and an *angustifrons* x *neglectus* from Andalucia, Colombia, 2,500 feet (Amer. Mus. Nat. Hist.).

In comparison with the San Ramón and Pozuzo birds, the Vista Alegre specimen is much more tinged with olive above and below and the outer rectrices are much less extensively yellow, having the area of that color restricted to the base where it is concealed by the under tail-coverts. The yellow on the forehead is likewise much reduced, being practically absent in mid line though present on the sides above the lores. In this latter respect it is matched by the Pozuzo bird, but the San Ramón specimens have the yellow on the top of the head reaching to or beyond the posterior border of the eyes. The bill apparently is rather uniformly light colored, but my field notes on the Vista Alegre specimen show the base of the bill to have been distinctly pale olive greenish in the freshly killed specimen. Taczanowski's account (Orn. Pér., 3, pp. 407–410, 1886) shows considerable variation among the specimens from various parts of Perú examined by him.

After a careful study of the various forms related to *alfredi*, I have reached the belief that *angustifrons* belongs to the same specific group. The present form, *alfredi*, ranges throughout Perú except in the northeastern Amazonian lowlands where, at Iquitos, Sarayacu, Nauta, Loretoyacu, and other near-by points, *angustifrons* occurs. In Ecuador, *angustifrons* is recorded from the region of Macas, Río Suno, Baeza, Río Coca, and below Oyacachi. Taczanowski and Berlepsch record *alfredi* from Mapoto, in the same general region, but Berlepsch's unpublished notes describe the Mapoto bird in sufficient detail to make it very probably a specimen of *angustifrons*, having no yellow whatever on the forehead or lores but rather a pale olivaceous coloration exactly like in specimens of *angustifrons* which I have seen from the Río Suno (Amer. Mus. Nat. Hist.). The Mapoto record, therefore, should be removed from *alfredi* to *angustifrons*.

The Peruvian race, *alfredi*, crosses into Ecuador from Perico and Bellavista (Bangs and Noble) to Zamora (Chapman) and other near-by localities in the subtropical zone, not conflicting with the range of *angustifrons*. In Colombia, *angustifrons* is confined to the lower elevations on the Amazonian side of the Andes as at La

Murelia, Florencia, and Villivicencio, while *neglectus* occupies the higher elevations on the eastern slope as at Andalucia and Monteredondo (Chapman), extending northward into Venezuela to the neighborhood of Mérida. To make this apparent relationship more significant, specimens from Andalucia and Florencia are intermediate between *neglectus* and *angustifrons* as has been pointed out by Chapman (Bull. Amer. Mus. Nat. Hist., **36**, p. 626, 1917). One of these specimens (a male from near Andalucia, 2,500 feet, below Caquetá), examined in this connection, is very like Río Suno (Ecuador) specimens of *angustifrons* except that the bill is largely whitish with the basal third darker and brownish, while the bill of typical *angustifrons* is entirely black. However, a male of undoubted *angustifrons* from Río Suno has an extensive whitish area on the maxilla and a whitish spot on the tip of the mandible, showing a partial loss of the typical black coloration. The particular specimen from Andalucia might be referred to *angustifrons* showing approach to *neglectus* rather than the reverse, especially in view of the low elevation at which it was taken.

A male of *neglectus* from La Azulita, Venezuela, shows an approach to *oleagineus* from the coastal range (Maracay, San Julián, and Cumaná) in the more olivaceous tone of the body plumage and especially of the outer margins of the remiges. The forehead is broadly yellow in the La Azulita bird but is variable in *oleagineus* since, in three skins from Maracay, one has a rather broad yellowish forehead, another has the yellow band reduced, and the third has no yellow whatever on the head.

To recapitulate, therefore, I believe that we have an extensive specific group ranging from Venezuela to Bolivia and including *oleagineus, neglectus, sincipitalis, salmoni, atrocastaneus, angustifrons, alfredi,* and possibly *australis,* although the latter name may prove to be a synonym of *alfredi,* judging from unpublished notes on Bolivian birds made by the late Count Berlepsch. In original description, *australis* was compared only with *sincipitalis* and *neglectus* from which it seems to differ exactly as does *alfredi,* to which no reference was made. The oldest name in the group as thus arranged is *angustifrons.*

Cacicus cela cela (Linnaeus).

P(arus) Cela LINNAEUS, Syst. Nat., ed. 10, 1, p. 191, 1758—"in Indiis"; errore, Surinam suggested by HELLMAYR, 1906.

A male from the Río Colorado, Chanchamayo Valley, January 31, 1923.

Compared with forty-two skins from northern Perú, Brazil, eastern Colombia, Venezuela, British Guiana, and the type locality, Surinam (one male); also with two females of *flavicrissus* from western Ecuador.

A wide-ranging species of the tropical zone. The Peruvian birds can not be separated from the Surinam examples.

Cacicus leucoramphus peruvianus (Zimmer).

Cassicus leucoramphus peruvianus ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 66, 1924—mountains near Panao, Perú; Field Mus. Nat. Hist.

One male (the type) from near Panao, July 7, 1922.

Compared with a male and female from Rumicruz, Junín (Amer. Mus. Nat. Hist.); also with eleven specimens of *leucoramphus* from Laguneta, Bogotá, Almaguer, and Páramo de Tamá, Colombia (six in Amer. Mus. Nat. Hist.).

The type was found in a strip of heavy woodland, an upward extension of the subtropical zone, along the banks of the river. It was in company with *Cyanolyca viridi-cyanea jolyaea*. I suspect that it was the author of a sweet, clear whistle which was heard at this place just before the bird was seen.

Cacicus uropygialis uropygialis (Lafresnaye).

Cassicus uropygialis LAFRESNAYE, Rev. Zool., 1843, p. 290—Colombia; Paris Mus.

Cassicus uropigyalis (sic) LAFRESNAYE, Rev. Zool., 1847, p. 218—Bogotá.

Cassicus curvirostris LAFRESNAYE, Rev. Zool., 1847, p. 218—Bogotá; new name for *C. uropygialis*.

Cassicus pachyrhynchus BERLEPSCH, Journ. Orn., 37, p. 299, 1889—Tarapoto, n. Perú; Berlepsch coll., Mus. Frankfort.

One skin from Chinchao, shot in May, 1922, by Señor Pedro Manuel Pinzas of Huánuco and presented to the Expedition.

Compared with four males and two females from Andalucia, Colombia; and Oyacachi, Baeza, and Río Sardinas, Ecuador (Amer. Mus. Nat. Hist.); also with three males of *pacificus* from Tadó and Barbacoas, Colombia, and Bulum, Ecuador; and twelve skins of *microrhynchus* from Costa Rica and Panamá.

The Peruvian specimen is inseparable from the Colombian and Ecuadorian birds. There is a great variation in size in this race and it is possible that Peruvian birds may be found to average a little larger than Colombian examples, but it is impossible to draw a line anywhere to define two well-marked groups. Unfortunately

Berlepsch failed to note any differences between his *pachyrhynchus* and what he considered to be typical *uropygialis*, although he stated that they resembled each other in the light tone of red and the restricted area of the rump patch, both of which are distinguishing characteristics of the *uropygialis* group as opposed to *haemorrhous*.

A detailed comparison of *haemorrhous* and *uropygialis* has revealed a number of differences which render easy the separation of these two species. The more extended and deeper red uropygium of *haemorrhous* is noted above. The high and evenly curved bill of *uropygialis* as compared with the somewhat flattened or even partly concave culmen of *haemorrhous* was noted by Lafresnaye as early as 1847. The satiny purplish sheen of *haemorrhous* (restricted to the tips of the feathers in *C. h. aphanes*,[1] is a prominent feature of that species when contrasted with the duller black of *uropygialis*. The more extensive white at the base of the feathers of neck and back in *uropygialis* is sometimes useful for comparison. Finally, the wing-formula is quite distinct in the two groups; *haemorrhous* has the outer primaries distinctly narrower and more attenuated than *uropygialis* and has the first (outermost) primary longer than the sixth and shorter than the fifth which in turn is distinctly shorter than the second, while the fourth (sometimes the third) is the longest; *uropygialis* has broader quills and has the first primary longer than the seventh but shorter than the sixth, while the fifth and fourth are subequal and longest.

The genus *Cacicus* of Lacépède, 1799, seems never to have had a type species designated. Ridgway (Bull. U. S. Nat. Mus., **50**, pt. 2, p. 186, 1902) accepted *Cassicus affinis* Swainson as type but cited it with an interrogation mark which may raise future objections. Lacépède's original description mentioned no particular species, a fact which leaves the road clear for subsequent designation of any species found to agree with the description. Both *Cacicus* of Daudin

[1] It is possible that this bird should bear Swainson's name *affinis*. The original plate of Swainson is somewhat equivocal (Birds Brazil and Mexico, pl. 2, 1834), and shows characters which belong to both Guianan and east-Brazilian forms. The country of origin is said to be "Brazil" but this is not conclusive in view of other errors of that sort in the same work. Swainson visited parts of eastern Brazil where "*aphanes*" occurs but not those parts of the same country inhabited by "*haemorrhous*" which, at that time, were rather inaccessible; so, if the locality is correctly given, the bird is probably the same as *aphanes*. Bonaparte (Compt. Rend., **37**, p. 833, 1853) was the first to assign Swainson's name to the Guianan race but at the same time he misidentified *haemorrhous* as the east-Brazilian form. Berlepsch (Journ. Orn., **37**, p. 300, 1889) rectified the status of *haemorrhous* and renamed the east-Brazilian subspecies *aphanes*, but offered no proof that it was not entitled to the name *affinis*. I am inclined to believe that Swainson's specimen came from the eastern coast of Brazil and that his name should be given priority over Berlepsch's *aphanes*.

and *Cacicus* of Cuvier have been favored by the designation of *Oriolus haemorrhous* Linnaeus as type species, and to make these names absolutely identical with Lacépède's earlier genus I hereby formally designate *Oriolus haemorrhous* Linnaeus as the type species of *Cacicus* Lacépède, 1799.

Pezites militaris bellicosa (De Filippi).

Sturnella bellicosa DE FILIPPI, Mus. Mediol. Anim. Vertebr., cl. 2, Aves, pp 15, 32, 1847—"Amer. trop. occ."—I suggest Lima, Perú; Milan Mus.

Pezites brevirostris CABANIS, Mus. Hein., 1, p. 191, 1851—"Brasilien" (error = Peru?); Halberstadt Mus.

Leistes albipes PHILIPPI and LANDBECK, Anal. Univ. Chile, 19, No. 5, p. 616, Nov., 1861—Perú = Arica, Chile; Santiago Mus.

Eight males and four females from Huánuco, May 27 and July 22–29, 1922.

Compared with twenty-two additional skins from Macate, Cajamarca, Menucucho, Huancabamba (Mus. Comp. Zool.), and Lima and Vitarte (Amer. Mus. Nat. Hist.), Perú; Santa Rosa, Ecuador (Amer. Mus. Nat. Hist.); and Chacalluta, Tacna, Chile (now Perú).

The Huánuco birds differ somewhat from the specimens taken on the coast and in the northern Marañón region but I am not certain of the stability of the characters. The females have the entire throat distinctly reddish with rather narrow buffy tips, the red extending almost to the bases of the feathers, whereas the throat is usually white or buff in the coastal females. The males in fresh plumage average deeper red and less scarlet than the more western examples though worn and faded specimens are not definitely distinguishable. In fresh plumage, also, the under parts are more narrowly, if at all, margined with white or buff.

Beside the characters of coloration there is the added factor of isolated distribution. *P. m. bellicosa* inhabits the arid coastal region from Tacna to Esmeraldas, Ecuador, and in Perú, at least, crosses the coastal range by a low pass in the northern part of the country and follows the eastern slopes of the western Andes southward to Cajamarca, so far as known. To reach the vicinity of Huánuco from this region, it appears to be necessary to cross the high central Andes separating the Huallaga and Marañón rivers or else to follow the river valleys through the humid tropical zone, both of which courses pass outside of the habitat of the species. The Huánuco

birds probably reached their present area of distribution by a route now closed.

I am inclined to place *bellicosa* in the same species with *militaris*. There is no pronounced difference between them except the average size of the bill which is greater in *bellicosa* than in the other two, and this is only a matter of degree. A male of *bellicosa* from Cajamarca has the culmen from base measuring 29 mm.; a male of *militaris* from Rio Nireguao, Chile, has a measurement of 30½ mm., one from Chubut, Chile, measures 31, and one from Los Yngleses, Buenos Aires, Argentina, also measures 31. The color of the Huánuco birds also suggests the rosy tone of *militaris*.

Unfortunately the name *Trupialis* can not stand for this genus, having been used for the first time in another sense by Merrem (in Ersch and Gruber, Allg. Encycl. Wiss. Kunst., **15**, p. 275, 1826) as a new name for *Oriolus* Illiger (Prodr. Syst. Mamm. Aves, p. 214, 1811), nec *Oriolus* Linnaeus. Illiger's genus included only two species, "*Oriolus Icterus* and *Cayanensis* Lin.," and as no type species has been designated for it I propose herewith as type "*Oriolus Icterus*," thus making *Oriolus* Illiger equal to *Icterus* Brisson. The type of *Trupialis* Merrem thus becomes *Oriolus icterus* Linnaeus. The oldest available name for the present group is *Pezites* Cabanis (Mus. Hein., **1**, p. 191, 1851)—new name for *Trupialis* Bonaparte (nec Merrem), the type of which was designated by Gray, 1855, as *Sturnus loyca* Molina.

This species, called "Pecho Colorado" and "Juan Chaco" by the natives, was common in the corn fields and other cultivated areas around Huánuco. Most of the birds were very fat. The song suggested that of the Red-winged Blackbird (*Agelaius phoeniceus*), resembling the syllables "o-ka-chee," but it had a quality also somewhat like that of *Sturnella magna* (not *neglecta*). The actions were distinctly those of *Sturnella*, whether the birds were walking about on the ground, perched on a leaning cornstalk, or traveling from field to field on rapidly beating wings. The birds proved to be excellent camp fare.

Tersina viridis occidentalis (Sclater).

Procnias occidentalis SCLATER, P. Z. S. London, **22**, p. 249, 1854—New Granada = Bogotá, Col.; British Mus.

Two males and two females from Vista Alegre, October 17 and 18, 1922.

Compared with seven north-Peruvian, Ecuadorian, Colombian, and Venezuelan skins; also with eleven specimens of *viridis* from Brazil and Bolivia.

The Vista Alegre birds agree with the measurements of *occidentalis* and with the other specimens referred to that race. The two males are not fully adult and are in mixed plumage. They were found singly or in small flocks about scattered trees in the open.

Tanagra xanthogaster quitensis Nelson.

Tanagra xanthogaster quitensis NELSON, Smith. Misc. Coll., **60**, p. 16, Sept. 27, 1912—"Quito"; U. S. Nat. Mus.

Two males from Vista Alegre, August 26 and October 15, 1922; a male and female from Huachipa, September 9 and 18.

Compared with two males from Moyobamba, a male from Rioja, and three females from Puente de Chimbo, western Ecuador; also with nine skins of *brevirostris* from Bogotá and Andalucia, Colombia, and the Carimang River, British Guiana, and a male of what appears to be *chocoensis* from El Roble, Quindio Andes, Colombia.

This group is greatly in need of revision but I have not the material to undertake it. At present I am unable to place my Peruvian specimens satisfactorily. The Huachipa male nearly matches a specimen from El Roble, Colombia, which, in turn, is much paler yellow on the crown and belly than the Bogotá skins of *brevirostris*, approaching *chocoensis*. One Vista Alegre male is as deeply colored on the under parts as some of the Bogotá skins but the crown is a little brighter, less brownish. The other Vista Alegre bird is a little paler but is more orange than males from Moyobamba and Rioja, Perú; in the deep purplish iridescence on the back it is very close to males of *quitensis* from Puente de Chimbo, western Ecuador. One Moyobamba skin is nearly as purplish; another is less so; a Rioja male is bluer, less purplish than some Bogotá skins. Both Peruvian and Bogotá specimens have more iridescence on the throat than the west-Ecuadorian birds, in which the throat is duller and blacker.

The female from Huachipa is a little paler below than one from Moyobamba and both are paler than west-Ecuadorian females but like them are separable from British Guianan females (of *brevirostris?*) by much more greenish, less ochreous, yellow flanks.

In size of bill, the Ecuadorian birds are distinctly larger than all the Peruvian specimens, which are about like the Guianan and Bogotá specimens in this respect.

Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 651, 1926) has found *quitensis* to range entirely across Ecuador and into extreme northern Perú, evidently cutting off the range of *brevirostris* from Peruvian territory. Peruvian material at hand seems to be more or less distinctly separable from *brevirostris* by average paler crown and belly and to be much closer to *quitensis* in spite of the slightly but distinctly longer bill of the latter. Chapman (l. c.) considers the size of bill in Ecuadorian birds to be a variable character so that the value of this difference in the present instance needs confirmation by a larger series. In view of this fact I prefer to await more material before venturing to separate the Peruvian birds from *quitensis*.

This species was found in a variety of situations; among the miscellaneous species in the vagabond flocks of the forest, in small flocks of its own kind about flowering trees on the open hillsides, and in the low trees along the banks of the rivers. It was not seen outside of the tropical zone.

Tanagra chrysopasta chrysopasta Sclater and Salvin.

Tanagra chrysopasta SCLATER and SALVIN, P. Z. S. London, 1869, p. 438, pl 30, figs. 1, 2—e. Perú, Río Ucayali; British Mus.

One male, Huachipa, October 3, 1922; two females, Río Colorado, Chanchamayo Valley, February 6 and 25, 1923.

No material for comparison.

The male agrees well with the original description and figure. The females disagree with the original figure by reason of having the lores and anterior malar region decidedly ashy white without a trace of the yellow as shown by the plate. Whether the discrepancy is due to incorrect coloring by the artist or to racial or individual variation, I have no material to determine. The white loral patch in the females is bordered above by a noticeable dusky line not present in the male. The significance of this character also is not determinable.

Tanagra mesochrysa tavarae Chapman.

Tanagra mesochrysa tavarae CHAPMAN, Amer. Mus. Novit., **160**, p. 9, 1925 — Río Tavara, Perú; Amer. Mus. Nat. Hist.

A female from Huachipa, October 3, 1922.

No material for comparison.

The specimen agrees with the description of this recently discovered subspecies.

Chlorochrysa calliparaea calliparaea (Tschudi).

C(allospiza) calliparaea TSCHUDI, Arch. Naturg., **10**, (1), p. 286, 1844—Perú (ex LICHTENSTEIN MS.); Berlin Mus.

Two adult males and one young male from Huachipa, September 15–24, 1922.

No material for comparison.

The specimens appear to be referable to typical *calliparaea*, having the belly distinctly and strongly bluish when held away from the light and decidedly blue when held toward the light (between Peacock Blue and Oxide Blue in one adult and Oxide Blue in the other). The bluest example has the blue of the middle breast continued laterally along the posterior border of the black throat in the shape of the letter Y; in the other adult this Y is bluer green than the sides of the breast but not clear blue. The immature specimen is a little duller than the adults and has the auriculars largely green mixed with a few Burnt Sienna feathers; the rump is yellowish green with a few orange-tipped plumes, and the throat is dull black with several green-tipped buffy feathers in the middle; the belly is distinctly blue.

All the specimens were taken from among the varied members of the vagabond flocks in the heavy forest.

Tangara atrocoerulea atrocoerulea (Tschudi).

P(rocnopis) atrocoerulea TSCHUDI, Arch. Naturg., **10**, (1), p. 285, 1844—Perú; Mus. Neuchâtel.

One male from Panao, July 4, 1922.

Compared with a female of *branickii* from Molinopampa and two males and a female of *vassori* from Bogotá, Santa Elena, and Almaguer, Colombia.

This specimen has the yellowish occipital patch rather smaller than is shown in Sclater's plate (Monogr. Calliste, pl. 31, 1857), but, according to manuscript notes by the late Count Berlepsch, this feature is somewhat variable. An important feature is shown by the mantle which is not uniform black as described but very distinctly, somewhat broadly, margined with the blue of the rump. This points very strongly toward intergradation with *branickii* of north-central Perú which I am inclined to place as a race of the same species. Probably *vassori* of northwestern Perú, Ecuador, and Colombia belongs to the same group.

I agree with Miller (Auk, **36**, p. 577, 1919) that the genus *Procnopis* is too imperfectly defined to warrant its retention.

Tangara chilensis chlorocorys Zimmer.

Tangara chilensis chlorocorys ZIMMER, Proc. Biol. Soc. Wash., 42, p. 91, 1929—Vista Alegre, Perú; Field Mus. Nat. Hist.

One male (the type) and four females from Vista Alegre, August 19–31, 1922; two adult females and one young female from Huachipa, September 18–October 7.

Compared with sixteen specimens of typical *chilensis* from the Río Colorado, Moyobamba, near Pebas, Rioja, and an unspecified locality, Perú, and Sarayacu, eastern Ecuador; two specimens of *caelicolor* from Mt. Roraima, British Guiana, and Bogotá, Colombia; and three additional specimens of the present race from Nuevo Loreto, near Tayabamba, Perú.

Detailed notes on the plumage of this race have been given in the original account. The bird is an inhabitant of the forest but is found also in adjacent groves and more openly situated trees. It is known locally as "Siete Colores," a name which, throughout Spanish-speaking countries, is given to the bird in each locality which has the most variegated plumage; as a result various birds in different parts of South America bear the same appellation.

Tangara chilensis chilensis (Vigors).

Aglaia chilensis VIGORS, Proc. Comm. Sci. Corr., Zool. Soc. London, 2, p. 3, 1832—"Chile" =errore; Bolivia suggested by BERLEPSCH, 1912; Cuming's coll., type lost.

Three males and one young female from the Río Colorado, Chanchamayo Valley, January 31–February 7, 1923.

Compared with various specimens as noted under *chlorocorys*.

The Río Colorado specimens belong to the typical subspecies.

Tangara schrankii (Spix).

Tanagra schrankii SPIX, Av. Bras., p. 38, pl. 51, 1825—no loc.; N. Brazil suggested by BERLEPSCH, 1912; Munich Mus.

Aglaïa melanotis SWAINSON, Anim. in Menag., p. 355, 1838—Perú (probably northern part); ♀; Hooker's coll., Cambridge (Eng.) Mus.?

One male and seven females from Huachipa, September 3–28, 1922.

Compared with specimens from Chanchamayo, Nuevo Loreto, and Yurimaguas or Chamicuros (Bartlett, 1867).

The Nuevo Loreto male has the spot in front of the eye bright golden yellow instead of green and there is a yellowish tone to the

green of the upper parts, especially noticeable on the superciliaries and hind neck. The Huachipa male has a distinct, narrow, green line separating the yellow crown from the black forehead. Bartlett's specimen from Yurimaguas or Chamicuros has a rather stronger tinge of blue on the thighs than the other males.

The females (all from Huachipa) vary in the amount of yellow on the crown. Some have a distinct patch of this color (smaller than in the male) while others show only a slight yellowish tinge. One has the basal half of the middle pair of rectrices white, probably due to partial albinism.

Tangara xanthogastra Sclater.

Calliste xanthogastra SCLATER, Contr. Orn., 1851, pp. 23, 55, January, 1851—"Rio Negro," Upper Amazons (cf. SCLATER, Cat. Birds Brit. Mus., **11**, p. 106, 1886); British Mus.

I(xothraupis) chrysogaster BONAPARTE, Rev. Zool., 1851, p. 144, March, 1851—Ecuador?

Calliste xanthogastra rostrata BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 339—La Merced, Perú; Warsaw Mus.

A female from the Río Colorado, Chanchamayo Valley, February 7, 1923.

Compared with two males from Moyobamba and Rioja, northern Perú.

The Río Colorado bird is practically topotypical of *rostrata* but fails to bear out the characters of that supposed race which was described as being simply larger than typical *xanthogastra*. The racial distinction was not maintained by Berlepsch in later writings.

The two males from Moyobamba and Rioja are bluer on the back than the Río Colorado female, possibly due to sexual difference.

Tangara aurulenta pulchra (Tschudi).

C(allospiza) pulchra TSCHUDI, Arch. Naturg., **10**, (1), p. 285, 1844—Perú; Mus. Neuchâtel.

Three males and one female from Huachipa, September 11–24, 1912.

Compared with a young female from Chanchamayo; also with four males and a female of *occidentalis* from Gallera, San Antonio, and Cauca, Colombia; and three specimens of *aurulenta* from El Roble and Bogotá, Colombia.

The four Huachipa birds vary somewhat in the intensity of the chestnut patch on the throat, the tone of greenish yellow on the

mantle, and the width of the black frontal band. All are much brighter and more intensely colored than a female (probably not fully adult) from the Chanchamayo district, which is probably topotypical. The variations in the series show an evident approach toward *aequatorialis* of Ecuador. I believe that the affinities of this bird are best expressed by placing it in the *aurulenta* group, to which it shows unquestionable relationship although exact intermediates are lacking.

This tanager was found in the humid tropical forest as an occasional member of the vagabond flocks, of which it was by no means the least conspicuous unit.

Tangara cyanotis lutleyi Hellmayr.

Calliste melanotis SCLATER (nec *Aglaia melanotis* SWAINSON, 1838, = *Tangara schrankii*), Ibis, 1876, p. 408, pl. 12, fig. 1—Río Napo, e. Ecuador; British Mus.

Tangara lutleyi HELLMAYR, Verh. Orn. Ges. Bayern, 13, (2), p. 198, 1917—new name for *Calliste melanotis* SCLATER.

A female from Huachipa, September 18, 1922.

Compared with a male from the lower Sumaco, Ecuador, a female from Sabanilla, Ecuador, a male from La Palma, Colombia, and a specimen from unknown locality and of unknown sex (Amer. Mus. Nat. Hist.); a male from Idma, Santa Ana, Perú, and two specimens of unknown sex from Archidona, Ecuador, and Bogotá, Colombia (U. S. Nat. Mus.), and a female from Chanchamayo (Field Mus. Nat. Hist.); also with a female of *cyanotis* from Yungas of Cochabamba, Bolivia (Carnegie Mus.).

The Bolivian specimen is separable from all the others by the more decidedly green mantle, blue anterior auriculars instead of all black ones, rather broader blue outer margins of the rectrices, and less buffy under wing-coverts; the central portion of the superciliary stripes are more golden yellowish, showing a greater contrast with the bluish anterior and posterior ends which, however, are no bluer than in some of the skins of *lutleyi*. The differences are certainly no more than subspecific, especially in view of the individual variability shown by the Colombian, Ecuadorian, and Peruvian series of *lutleyi*.

Tangara cyanicollis cyanicollis (D'Orbigny and Lafresnaye).

Aglaia cyanicollis D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 33, 1837—Yuracares, Bolivia; Paris Mus.

?Tangara cyaneicollis gularis CHAPMAN, Bull. Amer. Mus. Nat. Hist., 41, p. 332, 1919—Candamo, s. e. Perú; Amer. Mus. Nat. Hist.

One male and three females from Vista Alegre, August 27 October 12, 1922; one adult and one young female from Chinchao, November 9–15; one male and one female from Hacienda Buena Vista, Río Chinchao, September 15, 1922 (collected by E. Heller); one male from the Río Colorado, Chanchamayo Valley, February 7, 1923.

Compared with a small series of seven skins from the Yungas of Cochabamba, Bolivia, and Chanchamayo and Junín, Perú (Field Mus. Nat. Hist. and Amer. Mus. Nat. Hist.); also with one skin of *caeruleocephala* from Moyobamba, a male from near San Augustin, a female from La Palma, and a specimen of undetermined sex from Bogotá, Colombia; a male of *cyanopygia* from Pichincha, western Ecuador; six males, one female, and one unsexed skin of *granadensis* from Río Lima, Río Zapata, San Antonio, near Palmira, and Bogota, Colombia; and three males and two females of *hannahiae* from Colón and La Azulita, Venezuela.

There is considerable variation throughout the series but it is thoroughly mixed and without apparent geographic significance. I have not seen Urubamba specimens described by Chapman as *gularis*, but the Junín birds appear to be inseparable from Bolivian examples as subsequently remarked by Chapman (Bull. Amer. Mus. Nat. Hist., 55, p. 661, 1926) and Chanchamayo specimens are similar. The Vista Alegre examples are intermediate between typical *cyanicollis* and *caeruleocephala* but are closer to *cyanicollis*. The Río Colorado male is the most strongly marked individual in respect to the purplish patch on the throat, but it has very little purplish blue on the belly and forehead and the shoulders are not very coppery in tone, while the middle of the back is rather pronouncedly bluish, suggesting the Ecuadorian *cyanopygia*.

The young female from Chinchao (November 9) is just beginning its molt from the dull first annual plumage into adult dress.

Tangara gyroloides catharinae (Hellmayr).

C(alospiza) gyroloides catharinae HELLMAYR, P. Z. S. London, 1911, p. 1106—Chaquimayo, Carabaya, e. Perú; Munich Mus.

Nine males and five females from Huachipa and Vista Alegre, August 19–October 15, 1922.

Compared with thirteen skins of *gyroloides* from Colombia, one of *nupera* from western Ecuador, and seven of *bangsi* from Costa Rica and Panamá.

The characters of the race are well-marked in the males, less pronounced in the females.

The species was quite common in the heart of the forest where it was found among the vagabond flocks, but it also was of frequent occurrence at the edge of the woods and in more openly situated trees. It was rather active in its habits.

Iridosornis analis analis (Tschudi).

T(anagra) analis TSCHUDI, Arch. Naturg., **10**, (1), p. 287, 1844—Perú; Mus. Neuchâtel.

A male from Huachipa, September 21, 1922, and a male and three females from Chinchao, November 10–20.

Compared with a male and a female from Chilpes and Utcuyacu, Perú (Amer. Mus. Nat. Hist.); also with one Ecuadorian and nine Colombian specimens of *porphyriocephala* (Amer. Mus. Nat. Hist.) and an additional Ecuadorian skin (U. S. Nat. Mus.).

The Ecuadorian and Colombian specimens have deeper blue crown, back, and breast, darker and greener flanks, and deeper yellow under tail-coverts than the Peruvian birds, although the latter show a little variability among themselves in these particulars without approaching the northern form very closely. The two appear to be representative forms which belong to the same specific group. The females are rather duller than the males.

The type of *analis* may have come from near Lima since Tschudi (Faun. Per., Aves, p. 20, 1846) says that while the species was common in the fruit gardens of Lima he did not find it farther north nor east away from the interior of the coastal region. I did not observe it in the Rimac Valley. My Chinchao specimens were obtained from the thickets at the upper heads of the ravines in evident subtropical conditions; the Huachipa bird is from the tropical zone.

Delothraupis castaneoventris (Sclater).

Calliste castaneoventris SCLATER, Contr. Orn., 1851, p. 61—Bolivia; Liverpool Mus.

One male from the mountains near Huánuco, 10,500 feet, June 15, 1922, and three males and two females from Panao, July 3–10.

Compared with two females from Maraynioc (Amer. Mus. Nat. Hist. and U. S. Nat. Mus.), and a female, a young male, and a specimen of unknown sex from Incachaca, Bolivia (Amer. Mus. Nat. Hist. and Carnegie Mus.).

The Peruvian birds average larger than the Bolivian and have a greater amount of silvery tips on the feathers of the upper surface, but until a more satisfactory series of Bolivian birds is available I hesitate to propose a separation. There is some variation also in the degree of whiteness of the superciliary stripes and of the chin, and in the tone of rufescence on the under parts, which may not be constant.

Anisognathus lunulatus ignicrissus (Cabanis).

Poecilothraupis ignicrissa CABANIS, Journ. Orn., 21, p. 317, 1873—Marayniocc, Perú; Berlin Mus.

Poecilothraupis lunulata intercedens BERLEPSCH, Ber. V. Int. Orn.-Kongr., pp. 1044, 1045, 1135, 1912—Leimabamba, Perú; Frankfort Mus.

Six males (one immature) and five females (four immature) from the mountains above Huánuco and Panao (10,500 feet), May 31–July 10, 1922.

Compared with a male from Levanto and a female from near Balsas, Perú; also with a male and three females of *igniventris* from Incachaca, Bolivia, two males and a female of *erythrotis* from Ecuador (two from Hoyaucshi), and four skins of *lunulata* from Cundinamarca and "Bogotá," Colombia.

The Peruvian series shows little variation in essential characters. The tone of red on the under surface is a trifle more scarlet than in *lunulata* from Colombia and *erythrotis* (=*atricrissa*) from Ecuador. The exposed portions of the feathers of the crissum are mostly entirely red, although a few of the longer under tail-coverts occasionally show black subterminal areas, and the back lacks the bluish wash of *igniventris* from Bolivia. Several specimens, however, have distinct traces of bluish edges on the remiges and greater wing-coverts, showing an approach toward *igniventris*. One male from above Huánuco has a number of feathers in the center of the lower throat margined with scarlet; the same condition is noted in a female from Incachaca, Bolivia, in the Carnegie Museum. The significance of this is not apparent. Young birds have the colors of the adults duller and with the scarlet tinged with ochreous.

It seems probable that Berlepsch's *intercedens* is the same as *ignicrissa*. A male from Levanto (one of Berlepsch's paratypes) is no different from the Huánuco birds except that it is slightly smaller, which is of no importance in view of the fact that the maximum measurements given for *intercedens* are greater than the minimum of the present series. A female from near Balsas is similar. Berlepsch

recognized both forms in his revision of the tanagers, but beyond stating that *intercedens* is intermediate between *lunulata* and "*ignicrissa*" (=*igniventris?*) he did not mention *ignicrissa* in the description of the supposed new form. His manuscript notes contain no records of comparisons made between the two forms, but there are extensive notes on the new race under the name *ignicrissa*. The characters of *intercedens* are exactly those of *ignicrissa* which is intermediate between *lunulata* and *igniventris*, and it would be difficult to find a place for another intermediate form since there is not a great deal of difference between these as they stand. It is most likely that Berlepsch (who had no Maraynioc specimens of the species) was confused by the similarity of the names *igniventris* and *ignicrissa* and redescribed the latter race as *intercedens*. In any case there are no differences to support the claims of Berlepsch's race for recognition.

It is necessary to use Reichenbach's name *Anisognathus* for this genus. The name was published on June 1, 1850 (Av. Syst. Nat., pl. 77) in connection with unmistakable figures of the generic characters of the present species, and, in 1851, Bonaparte (Rev. Mag. Zool., p. 172) designated *Aglaia ignicrissa* as the type species. Cabanis's name, *Poecilothraupis*, was published ostensibly in 1851 (though probably late in 1850) but is certainly antedated by *Anisognathus* which, in turn, is antedated but not preoccupied (according to the recommendations under Article 36 of the International Rules of Zoological Nomenclature) by *Anisognatha* Lacordaire, 1848—*Coleoptera*. With the amount of detail in Reichenbach's published figure, his name can not be dismissed as a nomen nudum.

The species inhabited the temperate forest at moderate elevations. It was found in small flocks (possibly family groups) and singly, usually in the neighborhood of thickets though occasionally in more openly situated trees.

Thraupis episcopus caeruleus Zimmer.

Thraupis episcopus caeruleus ZIMMER, Proc. Biol. Soc. Wash., 42, p. 94, 1929—Vista Alegre, Perú; Field Mus. Nat. Hist.

Two males (including the type) and one female from Vista Alegre, August 20–October 14, 1922, and two males and a female from Chinchao, October 28–November 17.

Compared with five males and seven females from Moyobamba, two females from Yurimaguas, and two young females from Hacienda Limón, Perú; also with three skins of *major* from San Ramón, Perú;

eleven specimens of *coelestis* from Porto Velho, Caviana, São Paulo de Olivença, Tonantins, and Manacapurú, Brazil (five in Carnegie Mus.); and eighteen specimens of *episcopus* from the three Guianas and Bôa Vista, Manáos, Itacoatiará, Utinga, São Luis, Barra do Corda, São Bento, and Codó, Brazil.

Detailed notes on the plumages were given in the original description.

This pretty species was found most commonly about the trees in somewhat open situations. Its note is a soft, highly-pitched and rapid monotone which bears a curious resemblance to the tone of a squeaky violin, for which reason the bird is known locally as "Violinista."

Thraupis palmarum melanoptera (Sclater).

Tanagra melanoptera SCLATER, P. Z. S. London, **24**, p. 235, 1856—n. e. Perú and Bogotá; n. e. Perú suggested by BERLEPSCH, 1912; Bremen Mus.

A female from Vista Alegre, August 22, 1922.

Compared with three skins from Rioja and Yurimaguas, Perú, and various other localities in Central America, Colombia, Venezuela, northern Brazil, and Bolivia; also with a series of *palmarum* from eastern Brazil.

This species appeared to be rather uncommon in the localities visited. It was known locally as "Violinista Real."

Thraupis darwinii (Bonaparte).

Tanagra Darwinii BONAPARTE, P. Z. S. London, **5**, p. 121, 1837—Chile(?); s. w. Perú suggested by BERLEPSCH, 1912.

T(anagra) frugilegus TSCHUDI, Arch. Naturg., **10**, (1), p. 286, 1844—Perú; Mus. Neuchâtel.

?Tanagra darwini laeta BERLEPSCH and STOLZMANN, Ornis, 1906, p. 81—Cuzco, Perú; Berlepsch coll., Frankfort Mus.

A male and a female from Matucana, May 2, 1922; four males and two females from Huánuco, 6,500–10,500 feet, May 31–August 9; a female from Panao, July 16; a female from Chinchao, November 15; and two males and three females from Cullcui, Marañón River, December 13–16.

Compared with five males and two females from Cajamarca, two males and a female from Hacienda Llagueda, four males from Macate, and a male and three females from Putre, Tacna, Perú, and a male from "Ecuador."

The Matucana specimens are virtual topotypes according to Berlepsch's subsequent designation of type locality or, if extreme southwestern Perú was meant, the Putre, Tacna, birds must be topotypical. In addition to the specimens in hand I have had access to Berlepsch's manuscript notes, thanks to Dr. Hellmayr, which contain measurements of specimens from various other localities. So far as size is concerned, I agree fully with Chapman's conclusions (Bull. Amer. Mus. Nat. Hist., 55, p. 674, 1926) that there is but one form recognizable from Cuzco to Ecuador. The differences in color ascribed to *laeta* by Berlepsch and Stolzmann were found by Chapman (l. c.) to be inconstant. Possibly the types of *laeta* showed an approach toward the brighter colors of *bonariensis* which has been recorded by Sclater and Salvin (P. Z. S. London, 1869, p. 697) from Cosnipata, Perú.

The origin of Bonaparte's type is shrouded in mystery. Bonaparte says that it was a "Chilean bird in the British Museum brought to this country by the Expedition under Capt. Fitzroy," but that expedition secured specimens only of *bonariensis*, at Maldonado, Uruguay. Furthermore there are no records of any specimens of the western species which would have been available to Bonaparte; the first definite published account of such is Tschudi's description of *Tanagra frugilegus* from Perú, collected in 1838 or later. It was supposed for a time that Bonaparte had described the female of "*striata*" (=*bonariensis*), and Bonaparte himself follows that supposition in his Conspectus Generum Avium. Sclater (P. Z. S. London, 1858, p. 453), upon examining alcoholic specimens from Ecuador, decided that *darwinii* was based on a male of the western form and not a female of the eastern species, and this conclusion has been accepted to date. The characters of the female *bonariensis* do not answer Bonaparte's description and Sclater's conclusions are probably correct, but the mystery surrounding Bonaparte's type still remains to be cleared.

At Huánuco, this bird was known as "Pichaco." It was found in the open woods of the temperate zone and in the trees adjacent to the buildings of the towns and plantations.

Thraupis cyanocephala cyanocephala (D'Orbigny and Lafresnaye).

Aglaia cyanocephala D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 32, 1837—Yungas, Bolivia; Paris Mus.

Tanagra Maximiliani D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 276, 1839—new name for *Aglaia cyanocephala* D'ORBIGNY and LAFRESNAYE; Enquisivi, Sicasica, Bolivia.

One male from Chinchao, November 14, 1922.

Compared with a male of *olivi-cyanea* from Maracay, Venezuela; five males, three females, and a specimen of undetermined sex of *auricrissa* from Bogotá, Santa Elena, Barro Blanco, and Páramo de Tamá, Colombia, and Conejos and Escorial, Venezuela; also (for generic characters) with examples of the typical or other subspecies of *T. darwinii, bonariensis, abbas, palmarum, episcopus, glaucocolpa, cana,* and *sclateri.*

I am unable to separate *Sporathraupis* from *Thraupis.* The wing formula is a variable feature and in other races of *cyanocephala* is matched by various species of the genus *Thraupis.* The narrow operculate nostril is possessed by *darwinii, bonariensis,* and *glaucocolpa;* the comparative length of wing, tail, and tarsus is shared by *darwinii, bonariensis,* and other species. On the whole, *darwinii* and *bonariensis* share most of the characters ascribed to *Sporathraupis,* leaving only the shape of the bill which in these two is large and heavy but in *cyanocephala* is relatively slender. If *cyanocephala* is generically distinct from *ornata, coelestis,* and the other "blue tanagers," *darwinii* and *bonariensis* together should be separated in another genus of equal value, but since none of the characters are perfectly distinctive I prefer to follow Berlepsch and Sclater in recognizing a single genus *Thraupis* for all of them.

Ramphocelus carbo connectens Berlepsch and Stolzmann.

Rhamphocelus jacapa connectens BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 344—La Merced, Perú; Berlepsch coll., Frankfort Mus.; type also claimed by Warsaw Mus.

One male and two females from the Río Colorado, Chanchamayo Valley, January 29–February 14, 1923, and a male from Puerto Bermúdez, March 16.

Compared with a male from San Ramón and one from the Urubamba region.

The Río Colorado and the San Ramón birds are virtual topotypes. The male from Río Colorado shows purer black above and below while the Puerto Bermúdez specimen is faintly washed with maroon. The San Ramón male is like the Puerto Bermúdez bird and the Urubamba specimen is even more reddish.

Ramphocelus melanogaster transitus Zimmer.

Ramphocelus melanogaster transitus ZIMMER, Proc. Biol. Soc. Wash., 42, p. 95, 1929—Chinchao, Perú; Field Mus. Nat. Hist.

A male (the type) from Chinchao, October 25, 1922; an adult male, two young males, and two females from Vista Alegre, August 17–October 17.

Compared with fourteen specimens of *melanogaster* from northern Perú (two in U. S. Nat. Mus. and one, the type of *R. luciani* Lafresnaye, in Mus. Comp. Zool.).

Detailed notes on the plumage of this subspecies were published with the original description.

The bird was not very common and was seen usually in small flocks about certain large trees in the neighborhood of the hacienda buildings.

Piranga rubra rubra (Linnaeus).

(*Fringilla*) *rubra* LINNAEUS, Syst. Nat., ed. 10, 1, p. 181, 1758—America; based on CATESBY'S *Muscicapa rubra*, Hist. Nat. Carolina, 1, p. 56, pl. 56.

Three males from Chinchao, November 5–18, 1922; one female from Huachipa, October 5; and one male from the Río Colorado, Chanchamayo Valley, February 6, 1923.

Compared with a series of *rubra* from North and Central America, and three specimens from Venezuela; also with a single male of *cooperi* from Arizona.

One of the males from Chinchao (November 5) apparently is in first annual plumage; another (November 17) seems to be adult but is in worn, orange-tinted yellow; the third (November 18) is entirely red. The spring male from Río Colorado (February 6) is just completing a molt from yellow to red and retains the old worn plumage in the outer remiges and wing-coverts and the lower belly and flanks.

The Peruvian birds (and the Venezuelan) appear to be referable to *rubra*, but all of the males are distinctly paler red than the average specimen from North America in either winter or summer plumage. However, a specimen from North Carolina and another from Florida, which must be *rubra*, are about the same hue. The specimens are noticeably darker above than the male of *cooperi* and though within the measurements of *cooperi* are small for that form. Only *rubra* has been recorded from South America.

Piranga flava lutea (Lesson).

Pithylus luteus LESSON, l'Inst., 2, No. 72, p. 317, 1834—Callao, Perú; ♀; type lost? (Mus. Rochefort?)

Pyranga testacea tschudii BERLEPSCH and STOLZMANN, P. Z. S. London, 1892, p. 375—Lima, Perú; Frankfort Mus.

Two males from Santa Eulalia, April 19, 1922; a male from Vista Alegre, August 27; two males and a female from Chinchao, October 28–November 8; a female from Cullcui, Marañón River, December 13.

Compared with a male from Hacienda Limón, Perú, and nine specimens from Ecuador (eight in Amer. Mus. Nat. Hist.); also with series of all the allied races except *haemalea* as detailed in my review of the species (Field Mus. Nat. Hist. Publ., Zool. Ser., **17**, No. 5, pp. 167–219, 1929).

Piranga leucoptera ardens (Tschudi).

Ph(oenisoma) ardens TSCHUDI, Arch. Naturg., **10**, (1), p. 287, 1844—Perú; Mus. Neuchâtel.

A male and female from Vista Alegre, August 20 and 21, 1922; an adult male and a young male from Huachipa, October 7.

Compared with a series of *leucoptera* from Nicaragua and Guatemala, and a male of *latifasciata* from Costa Rica.

The adult males agree with Tschudi's description except in the matter of the forehead. Tschudi describes the forehead as black but in my specimens it is quite uniform red with the black confined to the lores, nasal plumes, and an incomplete circumocular line interrupted on the lower eyelid. Taczanowski (Orn. Pér., **2**, p. 497, 1884) gives a description which agrees well with my specimens and says that the front lacks a black border. It is probable that Tschudi meant the fine black tips on the nasal plumes or possibly he had specimens showing a greater extent of black than the series at hand. Berlepsch (Ber. V. Int. Orn.-Kongr., p. 1066, 1912) notes that Colombian examples of *ardens* have a black forehead, and both *leucoptera* and *latifasciata* are similarly provided.

Both adult males show occasional yellow feathers in a few places through the plumage, though they evidently are fully adult. The young male is mixed Grenadine Red, Lemon Chrome, and Olive Yellow, with conspicuous white terminal spots on the tertials and secondaries which are suggested on the outer margins of the tips of the primaries. The female is much deeper yellow than the female of *leucoptera* and the adult males are purer (less scarlet) red.

Habia rubica peruviana (Taczanowski).

Phoenicothraupis peruvianus TACZANOWSKI, Orn. Pér., **2**, p. 498, 1884—Yurimaguas and Monterico, Perú; type from Yurimaguas; Warsaw Mus.

Two males and a female from Puerto Bermúdez, March 17 and 19, 1923.

Compared with an adult male, female, and young male of *amabilis* from Río San Antonio and Río Espirito Santo, Bolivia.

The Peruvian males are appreciably lighter, more brick red, in coloration than the Bolivian male and appear to represent Taczanowski's form, but the value of the characters is impossible to determine without more material. Berlepsch described *amabilis* as darker than *rhodinolaema* of Ecuador; Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 679, 1926) found *rhodinolaema* to be darker than *amabilis*.

These birds were found in the partially inundated forest among the bushes. They were very wary and alert, usually escaping from the back of their retreat and flying low to other shelter when approached too closely. After a partial emergence to look at the intruder they thereafter kept well out of sight though, judging by their voice and the movement of the foliage, in constant, nervous motion.

Lanio versicolor versicolor (D'Orbigny and Lafresnaye).

Tachyphonus versicolor D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 38, 1837—Yuracares, Bolivia; Paris Mus.

Three males and one female from Huachipa, September 11–October 3, 1922.

No material for comparison.

The specimens were taken in the heavy forest associated with the mixed species of the vagabond flocks, usually high in the trees. The present form appears to be rare in collections.

Tachyphonus surinamus brevipes Lafresnaye.

Tachyphonus brevipes LAFRESNAYE, Rev. Zool., 1846, p. 206—Colombia; Paris Mus.

Tachyphonus Napensis LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., 8, p. 42, 1864—Río Napo, e. Ecuador; Amer. Mus. Nat. Hist.

A male from Puerto Bermúdez, March 13, 1923.

Compared with two males from "Bogotá," Colombia; also with a male of *surinamus* from Surinam and three skins from British Guiana, and with three skins of *insignis* from Utinga and Santarem, Brazil.

The Peruvian bird differs from the two "Bogotá" examples by having the uropygium deeper cinnamomeous, exactly matching the lower flanks; the posterior portion of the occipital patch is hardly paler than the anterior portion, and the bases of the central throat feathers are white. Whether or not these characters are significant can be determined only from a larger series than is available at present. On certain feathers of the throat, breast, and upper flanks there are subterminal bands of cinnamomeous buff, and fine rufescent tips are present on most of the feathers of the breast, upper flanks, and abdomen, suggesting a tendency toward a pale cinnamomeous under surface.

Tachyphonus rufiventer Spix.

Tanagra rufiventer SPIX, Av. Bras., 2, p. 37, pl. 50, fig. 1, 1825—"sylvis Parae"; São Paulo de Olivença emend. HELLMAYR, 1919; Munich Mus

Tachyphonus metallactus OBERHOLSER, Proc. Biol. Soc. Wash., 32, p. 240, 1919—new name for *Tanagra rufiventer* SPIX (nec *Tanagra rufiventris* VIEILLOT, 1819).

Two males and two females from Vista Alegre, August 20–October 14, 1922.

Compared with a male from Rioja.

One of the Vista Alegre males is not fully adult. It has the yellow crest paler than the other and retains a few olive feathers on the shoulder; otherwise it is like the adult. The male from Rioja agrees with the other birds.

According to the International Code of Nomenclature, *rufiventris* does not preoccupy *rufiventer*.

Thlypopsis ornata media subsp. nov.

Type from Cullcui, Marañón River, Perú. Altitude 10,400 feet. No. 60,161 Field Museum of Natural History. Adult female. Collected December 15, 1922, by J. T. Zimmer. Original number 3,324.

Diagnosis.—Exactly intermediate between *T. o. ornata* from central Ecuador and *T. o. macropteryx* from south-central Perú, having the coloration of *ornata* and the size of *macropteryx*.

Habitat.—North-central and northern Perú and southern Ecuador.

Description of type.—Forehead and sides of the face, including the superciliary region, Mars Yellow x Ochraceous Buff; crown darker, Mars Yellow x Sudan Brown; nape with a faint tinge of

olive; back Deep Olive Gray x Dark Olive Gray; rump slightly paler, tinged with buffy on the sides. Chin and throat bright Antimony Yellow x Ochraceous Buff; breast, flanks (broadly), and under tail-coverts Cinnamon x Ochraceous-Tawny; median line of belly broadly white. Wings and tail dark Hair Brown, edged largely with the color of the back; outer margins of primaries paler, whitish, upper wing-coverts with exposed portions the color of the back; under wing-coverts, axillars, and inner margins of remiges white. Iris brown; maxilla black; mandible light blue; feet dull pale blue. Wing, 70 mm.; tail, 53; exposed culmen, 11; culmen from base, 14; tarsus, 21.

Remarks.—Three males of *ornata* from Huigra, Ecuador, have wing lengths of 55, 56, and 58½ mm. respectively; two females from Chunchi, Ecuador, show 56 and 58 mm.; a female from Cayandeled has the wing 55 mm. Berlepsch's description of *macropteryx* adds 57 mm. for a male of *ornata* from Bugnat, Ecuador, and 61½, 61, and 55 mm., respectively, for a male and two females from Cayandeled, while for *macropteryx* are given 67¾–71½ mm. for four males and 66 mm. for a female, from Maraynioc. A male and female of *macropteryx* from Chipa and Rumicruz, examined in this connection, measure 65 and 61½ mm., respectively. Thus *ornata* ranges from 55–61½ mm. (males) and 55–61 mm. (females) while *macropteryx* shows 65–71½ mm. (males) and 61½–66 mm. (females).

A Taraguacocha male and a Loja female of the present subspecies have the wings measuring respectively 64 and 62 mm.; a male, a female, and an unsexed bird from San Pedro, Perú, measure 67, 62, and 63 mm. Hellmayr (MS.) adds the following figures: five males from San Pedro, wing, 63¼–64 mm. (immature birds) and 66–67 mm. (adults); a male from Leimabamba, wing, 68 mm.; four females from San Pedro, wing 65 mm. (immature) and 61½–63 mm. (adults); one female from Leimabamba, wing, 63 mm. Together with the type the series shows the males to have a wing length of 62–68 mm. and the females 61½–70 mm.

The differences in coloration between *ornata* and *media* on the one hand and *macropteryx* on the other appear to be as follows. In *macropteryx* the top of the head is darker and less yellowish, being about dark Sanford's Brown; the breast and throat are more cinnamomeous, about Ochraceous Tawny x Ochraceous Orange; the belly is more broadly white and the flanks correspondingly narrow; the latter are less rufescent, being a grayish olive buff.

It may seem unnecessary to describe this form which apparently differs from *ornata* only in size but if the north-Peruvian and south-Ecuadorian birds were placed in *ornata* it would give that species a variation in wing length equal to about twenty-seven per cent of the minimum measurement, an unusually large amount. Since the difference in size is correlated with distribution and a large area of habitat is provided for the new form, it seems advisable to name the intermediate race. Measurements other than that of the wing are less definitive; the tail of *ornata* ranges from 43 to 53 mm.; that of *macropteryx*, 55½–61 mm.; that of *media*, 50–58. The sexes are not appreciably different.

Material examined:

T. o. ornata—Ecuador: Huigra, Chimbo 3 ♂[1]; Chunchi 2 ♀[1]; Cayandeled 1 ♀[2].

T. o. macropteryx—Perú: Chipa, Junín 1 ♂[3]; Rumicruz, Junín 1 ♀[3].

T. o. media—Perú: Cullcui, Marañón R. 1 ♀ (type); San Pedro 1 ♂ 1 ♀[2], 1?[3]. Ecuador: Taraguacocha 1 ♂[3]; Loja 1?[3].

Thlypopsis pectoralis (Taczanowski).

Nemosia pectoralis TACZANOWSKI, Orn. Pér., 2, p. 508, 1884—Acancocha, c. Perú; ♀; Warsaw Mus.

Five males and two females from the mountains near Huánuco, May 31–June 16, 1922, and a female from Panao, July 11.

No material for comparison.

My specimens agree very well with Taczanowski's description of this well-marked species of which only the type has been known up to the present time. One male and two females are immature. They differ from the adults in having the ochraceous color of the throat and breast much paler, being deep buff on the breast, ochraceous buff on the front, lores, superciliary stripes, and the sides of the head, and clearer yellow on the chin and throat. The crown and nape are buffy olive greenish, sharply defined against the superciliary line but blending more gradually into the lighter forehead and the darker back. The back is inclined to be somewhat lighter olivaceous than that of the adults.

[1]Specimens in Academy of Natural Sciences, Philadelphia.

[2]Specimens in United States National Museum, Washington.

[3]Specimens in American Museum of Natural History, New York.

Judging by the slender bill and straighter culmen, *pectoralis* is more closely related to *ornata* than to *inornata* or *sordida*.

The birds inhabited the bushy growth along the little streams of the mountain side. Occasionally an individual would mount to the upper twigs in the open to sing, but usually they remained secreted in the foliage.

Hemispingus leucogaster (Taczanowski).

Dacnidea leucogastra TACZANOWSKI, P. Z. S. London, 1874, p. 131, pl. 19, fig. 2—Maraynioc, Perú; Warsaw Mus.

Two males from Panao, July 3 and 16, 1922.

Compared with two females from Molinopampa.

The Panao birds agree fairly well with Taczanowski's description except that one of them has the feathers of the forehead with a distinct whitish terminal dot; this marking tends to pass posteriorly down the center of the crown but is lost in a slightly grayish median stripe. The other specimen has no frontal white except on the superciliary stripe but the center of the whole top of the head is grayish, leaving a dusky border on each side above the superciliaries.

The two females from Molinopampa have even more white on the front and less dusky on the crown than my specimens, and have noticeably less pale gray across the breast and more buffy suffusion on the flanks.

Schistochlamys melanopis grisea Cory.

Schistochlamys atra grisea CORY, Field Mus. Nat. Hist. Publ., Orn. Ser., 1, p. 346, 1916—Rioja, Perú; Field Mus. Nat. Hist.

A male and a female from Vista Alegre, October 17 and 18, 1922, and a female from Chinchao, October 29.

Compared with the type (female) from Rioja and a male and female from Moyobamba; also with a supposed female of *melanopis* from Mana, French Guiana (Carnegie Mus.), a male and female from Caracas, Venezuela, a male and three females from Colón, Venezuela, and two Bogotá skins (one in Amer. Mus. Nat. Hist.); with twenty-three specimens of *olivina* from Chapada and Cuyabá, Matto Grosso, Brazil (mostly in Amer. Mus. Nat. Hist.), and with thirteen Bolivian examples of the same form from Province del Sara, Buenavista, Río Surutú, Río Quiser and Mapiri (twelve in Carnegie Mus., one in Amer. Mus. Nat. Hist.).

Examination of this series shows that *grisea* is distinctly separable from typical *melanopis* by darker gray coloration and more extensive but less sharply defined black of the crown, which is slightly duller in tone. From *olivina* it proves to be equally distinct by darker gray coloration above and below and by the deeper black of the crown (which is distinctly brownish in *olivina*). Most of the Matto Grosso specimens of *olivina* are relatively old skins but the Bolivian series is recent, showing that the differences are not due to fading as otherwise might be supposed.

Cissopis leveriana leveriana (Gmelin).

L(anius) Leverianus GMELIN, Syst. Nat., **1**, (1), p. 302, 1788—based on the Magpie Shrike of LATHAM, Syn. Av., **1**, (1), p. 192, No. 49, 1781; loc. ign. (Guiana = French Guiana cited by LATHAM, Suppl. Synop., **1**, p. 54, 1787).

L(anius) picatus LATHAM, Index Orn., **1**, p. 73, 1790—Amer. merid.

Corvus collurio DAUDIN, Traité d'Orn., **2**, p. 246, 1800—"Chine ou à Cayenne."

Cissopis leverianus VIEILLOT, Analyse, p. 40, 1816.

Cissopis bicolor VIEILLOT, Nouv. Dict. Hist. Nat., nouv. éd., **26**, p. 417, 1818—part, Guiana.

Cissopis minor TSCHUDI, Faun. Per., Aves, p. 211, 1846—c. e. Perú and Brit. Guiana; type from Perú; Mus. Neuchâtel.

Bethylus medius BONAPARTE, Consp. Av., **1**, p. 491, 1850—Guiana.

A male from Puerto Bermúdez, March 8, 1923; one female from Huachipa, October 5, 1922; two females from Vista Alegre, August 24 and 27, 1922.

Compared with a series of twelve skins from Moyobamba, Perú; Florencia, Colombia; Tachira, Venezuela; Porto Velho, Brazil; and Hyde Park, British Guiana; also with two females of *major* from Minas Geraës, Brazil, and Misiones, Argentina.

The two specimens of *major* are recognizably distinct but the remainder of the series can not be subdivided satisfactorily. Most of the Peruvian skins have the glossy anterior parts a little greener than the Guianan and some of the Venezuelan specimens, but a Moyobamba female and two Colombian birds resemble the Guianan birds while two Venezuelan specimens are like the Peruvian in this respect. The size and shape of the bill and the white markings on the tertials, greater upper wing-coverts, and rectrices are variable without geographic significance.

Tschudi described his *minor* from Perú but included Guiana in the range, attempting only to separate these birds from the Brazilian

form which he called "*bicolor*" (=*major*). No one, apparently, has succeeded in separating the Peruvian birds from typical *leveriana*.

The species was found principally at the edge of the forest in the tropical zone. It was known locally as "Pichi Blanco" and "Mercenario."

Pheucticus chrysopeplus chrysogaster (Lesson).

Pitylus chrysogaster LESSON, Cent. Zool., p. 209, pl. 67, 1831—"Chili" = Perú?; type lost.

A male from Santa Eulalia, April 22, 1922; two males and a female from Huánuco, July 20–28; two males and a female from Chinchao, October 29–November 11; a young male from Vista Alegre, August 21.

Compared with a female of *chrysopeplus* from Mexico.

The adult males are quite variable in the tint of orange yellow or lemon yellow and in the amount of black and yellow on the mantle, but otherwise they agree among themselves. All have more or less white on the outer margins of the outer remiges near the tips, in some cases a considerable amount.

As may be supposed, this bird is rather conspicuous in the field. It favors the lightly wooded river bottoms and groves in the arid tropical and arid subtropical zones.

Spermophila simplex Taczanowski.

Spermophila simplex TACZANOWSKI, P. Z. S. London, 1874, p. 132—Lima, Perú; Warsaw Mus.

Two males and a female from Chosica, April 14–16, 1922.

Compared with a female from Macate.

The Chosica birds are virtual topotypes. One of the males is not quite adult; the other male and the female are badly worn.

This finch is an inhabitant of the weed patches, bushes, and cotton fields of the arid lowlands along the Rimac River.

Spermophila nigricollis inconspicua (Berlepsch and Stolzmann).

Sporophila gutturalis inconspicua BERLEPSCH and STOLZMANN, Ornis, 13, p. 84, 1906—Santa Ana, e. Perú; Frankfort Mus.

Two adult males, one nearly adult male, and one still younger male from Huánuco, May 24–July 21, 1922; one male from Chinchao, October 24.

Compared with a male from Moyobamba, a young male and a female from Yurimaguas, and a female from San Ramón, Perú; also with nineteen males of *nigricollis* from Brazil (Ceará, Goyaz, Bahia, and Minas Geraës).

The validity of *inconspicua* has been questioned by Todd and Carriker (Ann. Car. Mus., 14, p. 514, 1922), but there appear to be good grounds to favor its retention. In the series of *nigricollis* from Brazil, there is none which does not have a greater extent of deeper black on the head and throat than any of the adult Peruvian males. A single specimen from Varzea Formosa, Ceará, has the top and sides of the head and the sides of the throat and breast largely olivaceous, the feathers on the center of the throat and chest broadly tipped with yellowish olive, and the back brighter olive than in any other of the Brazilian examples, but this specimen is in molt and not fully adult. Its plumage is comparable to that of a nearly adult male from Huánuco in comparison with which the black of the Varzea Formosa skin is deeper and more extensive, thus carrying out the distinguishing features of the two forms. The remarks of Todd and Carriker were formulated upon examination of Venezuelan and Colombian, but not Brazilian, specimens and it is possible that birds from these northern regions are unusually variable and not of assured identity. However, the type locality of *nigricollis* is Brazil and the evidence at hand shows good uniformity among specimens from that country and uniform distinction among Peruvian skins. For these reasons, whatever the status of Colombian and Venezuelan birds, I believe that *inconspicua* is entitled to recognition.

Spermophila luctuosa Lafresnaye.

Spermophila luctuosa LAFRESNAYE, Rev. Zool., 1843, p. 291—Colombia; Mus. Comp. Zool.

Pyrrhula leucomelas LESSON, Echo du Monde Savant, 11, p. 234, Aug. 4, 1844 (Reprinted papers, p. 186, 1913)—"Amérique"; Abeillé collection, type lost?

Three males and two females from the mountains near Huánuco, 10,500 feet, May 31–June 10, 1922; an adult and a young male from Vista Alegre, October 11; a female from Chinchao, November 18.

Compared with three males from Cajamarca and Yurimaguas, Perú, and three skins from "Bogotá."

The series is rather uniform in color characters, most of the males showing more or less irregular spotting with brown or gray-tipped

feathers; the Bogotá specimens have paler bills, due possibly to seasonal difference or post-mortem change.

Spermophila obscura obscura (D'Orbigny and Lafresnaye).

E(mberiza) obscura D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 81, 1837—Chiquitos, Bolivia; Paris Mus.

Spermophila obscura TACZANOWSKI, P. Z. S. London, 1874, p. 519—Pallay-pampa, Perú; formerly Warsaw Mus., now lost.

Spermophila pauper BERLEPSCH and TACZANOWSKI, P. Z. S. London, 1884, p. 293, pl. 24, fig. 2—Cayandeled, w. Ecuador; Warsaw Mus.

A young male from Huachipa, September 22, 1922; an adult male, a young male, and a female from Vista Alegre, August 19–October 14.

Compared with three skins from Hacienda Limón, near Balsas, northern Perú, and one skin from Buenavista, Bolivia.

While showing some individual variations, the series at hand evidently represents a single form. The Huachipa and Vista Alegre birds are darker and browner, the Hacienda Limón specimens are paler and, in one case, distinctly more olivaceous, and the Bolivian bird is rather nearer the Vista Alegre skins above though paler below, like the north-Peruvian specimens.

Catamenia inornata minor Berlepsch.

C(atamenia) inornata minor BERLEPSCH, P. Z. S. London, 1885, p. 115—Cechce, Ecuador; Frankfort Mus.

Four males (two immature) and one female (immature) from the mountains near Huánuco, 10,500–12,200 feet, June 1–28, 1922.

Compared with a series of *minor* from Ecuador (Amer. Mus. Nat. Hist.) and a series of *inornata* from the provinces of Catamarca and Tucumán, Argentina.

In size the Huánuco specimens are distinctly referable to *minor* and in color probably also, although there does not seem to be a very marked difference among these races in that respect; the adult males of *minor* may average a little buffier below.

I can not see the advisability of recognizing a separate genus, *Idiospiza*, for this species, which is certainly very close to *Catamenia analis*. Both species, *analis* and *inornata*, approach a median point where the ninth and third primaries (counting from the inside) are equal; the bills are not greatly different, especially in picked specimens; the difference in acuteness of the tips of the rectrices is hardly generic in value; and there is, at least in one case, a trace of white on

the inner margins of the rectrices in *minor*, suggesting the inception of a white area on the inner web as in *analis*. I believe that the relationship is best expressed by retaining *inornata* in *Catamenia*.

Catamenia analis analoïdes (Lafresnaye).

Linaria analoides LAFRESNAYE, Rev. Zool., 1847, p. 75 Lima, Perú; Paris Mus.

Two males and a young female from Matucana, April 28 and May 2, 1922.

Compared with a young male from Mirador (near Macate), Perú, and with five skins from Huancabamba (Amer. Mus. Nat. Hist.); also with six specimens of *analis* from Parotani, Bolivia and Concepción, Tucumán, Argentina; six males of *söderstromi* from Quito, El Paso, Valle de Cumbaya, and Valle Tumbaco, Ecuador (Amer. Mus. Nat. Hist.); and a male of *schistaceifrons* from Bogotá, Colombia.

The Matucana specimens are about topotypical. The adults show the prominent characteristics of white belly and broad white wing speculum which indicate the affinity of typical *analis*, to which they are closer in these respects than are any other races of the species. They differ from *analis* by having a broader black area in the plumage at the base of the bill, in a somewhat smaller speculum, and in whiter, narrower, and more sharply defined outer margins on the outer remiges. The differences which Chapman noted (Amer. Mus. Novit., **143**, p. 10, 1924) in the arrangement of the white band at the base of the primaries in *analis* and *analoides* does not appear to be as fixed in the series at hand as was evidently the case in Chapman's series. One of the Matucana males has the white of the inner and outer webs of certain primaries confluent at the extreme base beneath the primary-coverts while a male of *analis* from Concepción, Tucumán, Argentina, has the white of the inner web extended down the inner margin toward the tip, though not as far as it reaches in typical *analoïdes*. I believe that extensive series of both forms would show still closer approximation even though the interposed race, *griseiventris*, is developed in another direction and does not show intermediate characters; there are many similar instances where closely allied subspecies are separated by an apparently aberrant but related race.

Catamenia analis insignis subsp. nov.

A young male from Cullcui, Marañón River, December 11, 1922.

Compared with three males from Cajamarca and a series of *analis*, *söderstromi*, *analoïdes*, and *schistaceifrons* as listed under *analoïdes*.

The Cullcui and Cajamarca specimens show certain characteristics which distinguish them from *griseiventris* and *analoïdes* and I propose, therefore, to separate them as a distinct subspecies under the name *insignis*.

Type from Cajamarca, Perú. No. 49,447 Field Museum of Natural History. Adult male. Collected April 19, 1912, by W. H. Osgood and M. P. Anderson. Original number 2,527.

Diagnosis.—Closely related to *C. a. griseiventris* but wing speculum obsolete; the whole white outer margin of the base of the primaries of approximately the same width, not strongly widened near the primary-coverts and not reaching the shafts. Black of face apparently narrower. Separable from *C. a. analoïdes* by the absence of the speculum and by a longer bill, grayer belly, and less black on the face.

Habitat.—Central-northern Perú in the upper Marañón Valley.

Description of type.—(Worn plumage.) Upper parts light Slate Gray becoming paler (Deep Gull Gray) on the rump and upper tail-coverts. Forehead, lores, a narrow line around the eye, the extreme anterior part of the malar region, and a narrow chin spot sooty black; throat and breast between Dark Gull Gray and light Neutral Gray; belly somewhat paler medially but not broadly white as in *analoïdes;* thighs gray like the flanks; under tail-coverts Auburn with narrow pale grayish tips. Lesser upper wing-coverts gray like the back; median and greater series black with gray margins and tips, broader and whiter near the tips of the outermost greater coverts; remiges black, all but the outermost primary with narrow pale margins (except toward the tips); margins of tertials gray, those of the primaries and secondaries whiter but rather uniform in width, not widening near base to reach the shaft nor to form a white speculum visible beyond the coverts (as in *griseiventris*); inner margins of remiges with narrow white margins becoming obsolete terminally; under wing-coverts gray like the flanks. Tail black with narrow, light grayish outer margins, broadest basally; all the rectrices but the middle pair with a large, more or less rectangular patch on the inner webs at about one-third the distance from the tips; spots on outermost feathers largest. Bill pale, dull yellow (in dried skin); feet brown. Wing, 65 mm.; tail, 56¼; exposed culmen, 9; culmen from base, 11; tarsus, 19.

Remarks.—Young males are about like those of *griseiventris* except for the absence of the white speculum on the wing.

Dr. Hellmayr advises me that he has seen a male from Baños, near Cajamarca, which he had noted as showing hardly a trace of white at the base of the primaries—evidently referable to this new form.

Volatinia jacarina peruviensis (Peale).

Geospiza peruviensis PEALE in WILKES, U. S. Expl. Exped., 8, p. 115, 1848—between Callao and Lima, Perú; U. S. Nat. Mus.

Volatinia jacarini CASSIN in WILKES, U. S. Expl. Exped., Ornith., p. 135, 1858—synonymy.

Volatinia jacarini pacifica CHAPMAN, Amer. Mus. Novit., 143, p 11, 1924—Trujillo, Perú; Amer. Mus. Nat. Hist.

Five males from Chosica, April 14-17, 1922; a male from Vitarte, April 26; two males from Matucana, April 30 and May 1.

Compared with two males from Puente de Chimbo, western Ecuador; also with series of *atronitens* from Perú to Mexico and of *jacarina* from various parts of Brazil.

The series is fairly uniform in having the under wing-coverts, axillars and the inner margins of the remiges largely white. The remiges are distinctly brown in all the specimens (of which all but three appear to be adult), thus corroborating Chapman's observations on the coastal race. However, it is noted that several specimens are molting and the new primaries and secondaries are not much blacker than the old worn plumes, though the tertials are distinctly blacker; the character seems to be of distinct value regardless of season. One Matucana bird has all the remiges darker than the rest of the series, though worn, but they are not so black as in full-plumaged *jacarina* or *atronitens*.

Volatinia jacarina atronitens Todd.

Volatinia jacarina atronitens TODD, Proc. Biol. Soc. Wash., 33, p. 72, 1920—Campeche, Mexico; Carnegie Mus.

Three adult and two young males and one female from Chinchao, October 23–November 11, 1922; a male from Huachipa, September 21; a male from Vista Alegre, August 22.

Compared with a male from San Ramón, Perú, and a series from Venezuela, Colombia, and Central America, including eight skins from Mexico (Colima, Cuernavaca, and Teapa); also with eight birds from the coast of Perú, referable to *peruviensis* Peale, and twenty-six skins of *jacarina* from various parts of Brazil.

The Peruvian series appears to be as variable in respect to the extent of white on the wing lining as is typical *atronitens* from Mexico. One adult Chinchao male and the Huachipa bird have the under wing-coverts and axillars entirely black, with a trace of white on the inner margins of the remiges in the Huachipa skin. Two other Chinchao males have the coverts and axillars largely white; one has only a trace of white on the inner margins of the remiges while the other has a broad white border which reaches the shaft only a little less broadly than in *jacarina*. The Vista Alegre male has considerable white on the wing lining except on the margins of the quills where there is none. A male from San Ramón also has a proportion of white beneath the wing. The series from Colima, Mexico, exhibits similar variation.

Compared with the Mexican series, the Peruvian birds are a little larger, on the average, and are less purplish and more greenish, though a single bird from Teapa, Mexico, is about as greenish as the Peruvian examples. Colombian and Venezuelan skins are intermediate, with a little closer approach to the Peruvian birds. Unfortunately most of the skins have the blackish coloration obscured by tips and margins of varying hues of brown so that it is difficult to match the tones exactly. If the southern birds are worthy of separation the fact must be determined by more material than I have at present.

In any case, certain characters of the inland form in Perú and throughout its range appear to be not firmly established, and while some examples are sharply distinct from the coastal birds, others are separable with difficulty and still others go to another extreme in a trend toward *jacarina* of the Brazilian campos.

The adults of this form at hand show little trace of the brownish remiges so noticeable in my series of *peruviensis*, except in several old quills of the San Ramón specimen. In all the other specimens the quills are quite blackish.

The habits of this interesting finch have been noted by various authors and it is unnecessary to go into details here. The curious leaping into the air at frequent intervals has given the bird its local name of "Bailerino" or dancer.

Saltator maximus maximus (P. L. S. Müller).

Tanagra maxima P. L. S. MULLER, Natursyst. Suppl., p. 159, 1776—based on DAUBENTON, Pl. Enl. 205; Cayenne.

Two males and three females from Vista Alegre, August 16–October 15, 1922; one female from Huachipa, September 22; one male from Chinchao, October 29.

Compared with twenty skins from British Guiana, Venezuela, Colombia, Ecuador, and various parts of Perú; also with sixteen skins of *magnoides* from Guatemala and Limón, Costa Rica; and eight skins of *intermedius* from Buenos Aires and Boruca, Costa Rica and from Panamá.

This species was confined largely to the tropical zone but was found also in the subtropical. It inhabited the seclusion of low-growing beds of ferns and the almost impenetrable bushy thickets at the otherwise open heads of ravines, whence its clear whistle could be heard most often towards sunset. When one was surprised at the edge of a thicket, it at once ceased its song and dived into concealment, where it remained silent and wary, though its voice would rise again in triumphant vigor as soon as the intruder left the immediate vicinity. It was known locally as "Título."

Saltator coerulescens azarae D'Orbigny.

Saltator Azarae D'ORBIGNY, Voy. Amér. Mérid., Ois., p. 287, 1839—Moxos, Bolivia (cf. HELLMAYR, Novit. Zool., 32, p. 6, 1925); Paris Mus.

A male from Río Colorado, Chanchamayo Valley, February 25, 1923.

Compared with several examples from Moyobamba and Lagunas, Perú.

I have no topotypical material for comparison, but the series agrees with the original description.

Saltator aurantiirostris albociliaris Philippi and Landbeck.

Pitylus albociliaris PHILIPPI and LANDBECK, Arch. Naturg., 29, (1), p. 122, 1863—Socoroma, Arica, Chile; Santiago Mus.?

Saltator laticlavius SCLATER and SALVIN, P. Z. S. London, 1869, p. 151—Tinta, Perú.

A male from Matucana, May 3, 1922; a male and female from La Quinua, May 9 and 13; two females and a young male from Cullcui, Marañón River, December 15.

Compared with a series from Macate, Perú; also with a specimen of *iteratus* from Cajamarca.

The Expedition birds are referable to *albociliaris*, subject to the uncertainty surrounding the application of that name as discussed in

detail by Dr. Chapman (Amer. Mus. Novit., **261**, 1927). The Cullcui specimen is in fresh plumage; the other adults are badly worn. The young male from the mountains near Huánuco is in fluffy juvenal plumage which shows the pattern of the adult with some variation in colors; the breast band is dark olive gray, with the black adult feathers just beginning to appear.

The short, clear song of this interesting bird was heard most often from individuals perched on the upper twigs of low trees in conspicuous places, and the brightly colored bill and black-bordered white throat formed excellent field marks.

Spinus magellanicus peruanus Berlepsch and Stolzmann.

Spinus ictericus peruanus BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 352—c. e. and w. Perú; type from La Merced; Warsaw Mus.

Two males from Vista Alegre, August 17 and October 11, 1922; one adult male and one young male from Chinchao, October 28 and November 18; two females from Huánuco, 6,500 and 10,500 feet, July 29 and June 7.

Compared with sixty-six additional skins representing various races, from Perú, Ecuador, Bolivia, and northern Chile (many in Amer. Mus. Nat. Hist. and U. S. Nat. Mus.).

The Vista Alegre birds are fairly typical and compare well with specimens from La Merced although there is some variation in the exact tone of yellow. The Chinchao adult shows a strong tendency toward the characters of *S. m. capitalis* of which I have (among other representatives of that form) two examples from Huaynapall (near Huamachuco) which are comparable to highland Ecuadorian skins. However, I believe that this Chinchao bird is a little closer to typical *peruanus* since the rump is less brightly yellow than in *capitalis* and the yellow of the outermost primary is inclined to reach the shaft, which it does not seem to do in *capitalis*. The approach to the more northern form is shown by the olivaceous tone of both upper and under parts.

The young male from Chinchao and the Huánuco females also are not typical of *peruanus* and, like the Chinchao adult, seem to represent an approach to a highland form intermediate between *capitalis* and *urubambensis*, but since they are not fully adult it is difficult to place them with assurance. With them may be associated three specimens from Macate.

After a careful study of the series of seventy-two skins from the various localities, I venture to propose an arrangement at variance with that of Mr. Todd who reported on the same problem with, in

part, much the same material. I believe that all the Peruvian members of the *magellanicus, capitalis,* and *peruanus* groups are members of a single species, bearing the earliest specific name, *magellanicus.* It is evident that the birds of the high elevations are distinct from those of the lowlands but examples from intermediate localities are precisely intermediate in characters though in a somewhat irregular manner. Todd, in his revision of the group (Ann. Car. Mus., 17, p. 52, 1926), noted that there was a difference in the vertical distribution of *paulus* and *capitalis* although he separated these forms specifically. Todd further mentions a single example of *peruanus* from Pisac, Perú, from which locality there were also specimens of *urubambensis,* which seemed to point to necessary specific distinction of these forms, but an examination of this specimen (U. S. Nat. Mus. No. 273,660) suggests another possibility. The bird in question agrees with *peruanus* in size (though it is small even for that race), but agrees better with *alleni* in size and color, though it is not distinctly referable to either of these forms or to *urubambensis,* to which the other Pisac skins clearly belong. A specimen from Machu Picchu is a close match for it, and since both Pisac and Machu Picchu are on a border line where *alleni, peruanus,* and *urubambensis* might possibly meet, I see no objection to considering occasional specimens from these localities as intermediate individuals, even though other examples from the same localities may be definitely closer to any one of the three forms.

Birds from the lowlands of the Chanchamayo Valley seem to be recognizably distinct as *peruanus;* those from the highlands of the Cuzco region form another separable form, *urubambensis;* specimens from the coastal lowlands are closest to *paulus* (treated below); and examples from the northern highlands belong to *capitalis; alleni* is not known to reach Perú but is found in the campos of Matto Grosso, Brazil, and eastern Bolivia. Examples taken in localities between any adjacent regions mentioned herewith show what may be interpreted as intermediate characters. For example, skins from the Junín Plateau show a mixture of the characters of *urubambensis, peruanus,* and *paulus;* those from a short distance down the western slopes (as at Matucana), begin to approach *paulus* somewhat more closely; toward the north, the highland birds approach *capitalis* while those from relatively low localities show a tendency toward *paulus* (as at Macate) or toward *peruanus* (as at Vista Alegre). The Maynapall specimens, though referable to *capitalis,* show a tendency toward *urubambensis* in a maximum wing length (71–73 mm.).

Thus seen, *urubambensis* forms a wide-ranging species, exhibiting altitudinal and geographical variants some of which are recognizable as distinct races, the rest being intermediates.

Spinus magellanicus paulus Todd.

Spinus peruanus paulus TODD, Ann. Car. Mus., 17, p. 51, 1926—Zamora, Ecuador; Amer. Mus. Nat. Hist.

A male and a female from Santa Eulalia, April 21, 1922; a young female from Vitarte, April 26.

Compared with ten additional examples from the coast of Perú, six specimens from the lowlands of Ecuador (including the type of *paulus*), four topotypes of *peruanus*, and much additional material from other parts of Perú (largely from Amer. Mus. Nat. Hist. and U. S. Nat. Mus.).

The coastal Peruvian birds average larger and brighter yellow than the Ecuadorian specimens of *paulus*, but the differences are not constant. The type of *paulus* is unusually brightly colored compared with the rest of the Ecuadorian series at hand, but it is exceeded in this respect by at least two of the Peruvian birds and matched by others. The measurements of Peruvian and Ecuadorian skins overlap. It is possible that a new Peruvian race could be described, but I prefer to see a larger series of Ecuadorian examples before determining the distinctness of such a form.

On the other hand, the entire series is readily separable from Chanchamayo Valley examples of *peruanus* by the much clearer and paler yellow of the under parts, more yellowish back, brighter rump and upper tail-coverts, and greater extent of yellow on the two middle rectrices.

Spinus atratus (D'Orbigny and Lafresnaye).

C(arduelis) atratus D'ORBIGNY and LAFRESNAYE, Mag. Zool., 7, cl. 2, p. 83, 1837—La Paz, Bolivia; Paris Mus.

Three males from La Quinua, May 16, 1922; one male from Huánuco Viejo, December 24.

Compared with one Bolivian, one Argentine, and two Chilean skins.

Two of the Peruvian birds are rather dull (brownish) black; the others are clearer black and clearer yellow, especially the Huánuco Viejo specimen which, furthermore, has the yellow of the belly broadly extended toward the flanks where the feathers are tipped

with the same color; the rump is similarly tipped with dull olive yellow. The appearance of this specimen is suggestive of a probable specific origin from some yellow-bellied, yellow-rumped progenitor.

Spinus olivaceus Berlepsch and Stolzmann.

Spinus olivaceus BERLEPSCH and STOLZMANN, Ibis, 1894, p. 387— Vitoc, Perú; Warsaw Mus.

Two males from Vista Alegre, October 11 and 18, 1922.

No material for comparison.

One of the birds has the lower under parts distinctly lighter in tone than the other, with the back rather darker, i. e. with the centers of the feathers more extensively dusky and the margins greener, less yellowish.

Sicalis luteola raimondii (Taczanowski).

Sycalis raimondii TACZANOWSKI, P. Z. S. London, 1874, p. 133—Lima, Perú; Warsaw Mus.

Six males and one female from Chinchao, November 13–18, 1922.

Compared with eight males from Lima, Vitarte, and Chorillos, Perú (Amer. Mus. Nat. Hist.) and a female from Cajamarca (Field Mus. Nat. Hist.); also with thirty-two specimens of *luteiventris* from Chile, Bolivia, Argentina, Uruguay, and Matto Grosso, Brazil.

Compared with the series of *luteiventris*, the Peruvian specimens have shorter wing and tail (males with wing 67½–73½ mm. and tail 44½–50, as against wing 73–77 and tail 51–58) and have the yellow of the under parts slightly more tinged with orange, being on the orange side of Lemon-Chrome rather than between Lemon-Chrome and Lemon Yellow; the Chinchao and Cajamarca birds are a trifle more deeply colored than those from the coast. The upper parts are not appreciably different in the two subspecies although none of the Peruvian birds is as brown on the margins of the dorsal feathers as are a few of the Argentine specimens. The latter, in turn, are browner than the Chilean, Uruguayan, and south-Brazilian examples, though these were taken in a different season. The race, *raimondii*, is not strongly marked but appears to be just recognizable.

The birds were found at Chinchao in small flocks scattered through the open parts of a coca plantation.

Sicalis olivascens chloris (Tschudi).

Sycalis chloris TSCHUDI (ex CABANIS MS.), Faun. Per., Aves, p. 216, 1846—Perú; Berlin Mus.

Two males from Matucana, May 3 and 4, 1922.

Compared with twelve skins from Antofogasta and Atacama, Chile; also with two specimens of *salvini* from Huánuco, Perú, and two of *sordida* from Jujuy, Argentina.

One of the Matucana birds has been compared with the type by Dr. Hellmayr and found to agree. This specimen is in complete plumage though moderately worn; the other skin is quite worn and stained.

These finches were not uncommon about Matucana, being found throughout the village in the streets, on the roofs of the houses, and about the dooryards. They were either single or in small groups and added a touch of color to the dull, mud-walled buildings. In the open country they were seen much less often.

Sicalis olivascens salvini (Chubb).

Pseudochloris salvini CHUBB, Bull. Brit. Orn. Club, 39, p. 70, 1919—Viña, Huamachuco, n. Perú; British Mus.

A male and female from Huánuco, May 27 and 26, respectively, 1922.

Compared with fourteen specimens of *chloris* from Matucana, Perú, and Antofogasta and Atacama, Chile, and with two skins of *sordida* from Jujuy, Argentina.

The Huánuco birds are definitely smaller than *chloris*, having wing measurements of 73 mm. (male) and 72 mm. (female) as compared to 77¼ and 82 in *chloris*. Chubb's type of *salvini* has a recorded wing measurement of 73 mm. Further than the difference in size there is no noticeable criterion for the separation of this race, although the bill of *salvini* appears to be shorter and blunter and thereby thicker in proportion to its length. Both Huánuco birds are in molt, the male nearly complete and the female not so far advanced, but in both examples the second primary (which is the longest one in this species) is that of the old plumage, thereby furnishing a reliable measurement.

Sicalis uropygialis sharpei (Berlepsch and Stolzmann).

Pseudochloris sharpei BERLEPSCH and STOLZMANN, Ibis, 1894, p. 386—"Peruvia centrali"; type from Ingapirca; Warsaw Mus.

A male from La Quinua, May 8, 1922; a male and two females from Huánuco Viejo, December 19 and 21.

Compared with three males and a female from Junín, and with specimens of *uropygialis* from Puno, Perú, and San Pedro (Antofogasta) and Chintaguaia (Tarapacá), Chile.

My specimens are referable to *sharpei* although the differences between that race and *uropygialis* seem to be not perfectly constant. The La Quinua bird has the posterior auriculars distinctly grayish but the sides and flanks are olive, not gray, and the under wing-coverts are distinctly yellowish rather than white. The San Pedro, Antofogasta, specimen of *uropygialis* shows a tendency toward the characters of *sharpei* by having the anterior auriculars suffused with yellow, the sides and flanks gray, and the under wing-coverts mostly white. Both of these intermediates seem to have the characters ascribed to *connectens* Chapman, but for geographic reasons are best considered as belonging to *sharpei* and *uropygialis*, respectively, though showing the interrelationships of the three forms by individual variation. Females and young males are not as strongly marked racially as the adult males.

Myospiza aurifrons aurifrons (Spix).

Tanagra aurifrons SPIX, Av. Bras., 2, p. 38, pl. 1, fig. 2, 1825—"in provincia Bahiae," errore; Fonteboa, Rio Solimoes, suggested by HELLMAYR, 1910; type lost.

Three males from Vista Alegre, August 26 and October 14, 1922; a male and a young female from Chinchao, October 22 and November 7; and a female from Puerto Bermúdez, March 9, 1923.

Compared with twelve skins from Brazil (Porto Velho, Manáos, and Itacoatiará), twelve from various parts of Perú (San Ramón, Yurimaguas, and Moyobamba), and a female from Todos Santos, Bolivia.

I can find no constant characters in this series to form a basis for dividing it. The female from Todos Santos, Bolivia, should represent the race *meridionalis* but does not differ from the Peruvian birds. I have not seen *zamorae*.

My Vista Alegre and Chinchao specimens were taken on open hillsides; the Puerto Bermúdez example was found in an open field adjoining the river. Both tropical and subtropical zones are represented.

Incaspiza personata (Salvin).

Haemophila personata SALVIN, Novit. Zool., 2, p. 8, 1895—Cajamarca; British Mus.

A single male from Cullcui, Marañón River, December 11, 1922.

Compared with a female paratype from Cajamarca (Amer. Mus. Nat. Hist.) and a male from near Otuzco. Also compared by Dr. Hellmayr with the type in the British Museum.

The single specimen obtained by the Expedition was the only one observed. It was found perched on agave stalks in a rather open field and was wild and wary.

Poospiza hispaniolensis Bonaparte.

P(oospiza) hispaniolensis BONAPARTE, Consp. Av., 1, p. 473, 1850—"ex Ins. Sti. Domin.," errore, type labeled "Pérou?"; Paris Mus.

Poospiza bonapartii SCLATER, P. Z. S. London, 1867, p. 341, pl. 20—Lima; new name for *Poospiza hispaniolensis* BONAPARTE.

A young male from Matucana, April 30, 1922.

No material for comparison.

The specimen is in very worn condition but agrees with the descriptions and Sclater's plate.

Zonotrichia capensis peruviensis (Lesson).

Pyrgita Peruviensis LESSON, L'Institut, 2, No. 72, p. 317, 1834—Callao, Perú.

A male from Vitarte, April 26, 1922; a male from Santa Eulalia, April 21; a female from La Quinua, May 14; an adult male, a young male, and two females from near Huánuco, 6,500–12,000 feet, June 2–July 30; three males from Chinchao, October 27–November 11; a female from Cullcui, Marañón River, December 15; and a male from Huánuco Viejo, December 25.

Compared with a small series from various parts of Perú including two examples of *pulacayensis* from Puno.

Certain differences have been noted in this series that may warrant the subdivision of *peruviensis*, but I prefer to leave the matter in abeyance until more material is available from certain localities.

The ubiquitous "Gorrion" was found from the coast to the top of the Andes and down to the subtropical zone of the interior valleys. Its rather mournful but sweet song was heard throughout the day and was a cheerful feature of many a pleasant valley as well as a friendly accompaniment of dusty miles of desert roadside. The birds living on the top of the divide seemed to have a slightly different song than those inhabiting the coastal plain, while in the interior valleys both types of song were noted.

At Cullcui in the upper Marañón Valley, many examples of this species were observed imitating the aerial antics of *Phrygilus fruticeti peruvianus* with which they were associated, and sometimes also attempting to imitate the song with more or less success.

Phrygilus gayi chloronotus Berlepsch and Stolzmann.

Phrygilus chloronotus BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 350 – Tarma, c Perú; Warsaw Mus.

A male from Cerro de Pasco, May 8, 1922; an adult and a young male from La Quinua, May 11 and 14; two males and a female from Cullcui, Marañón River, December 13–15.

Compared with seven skins from Macate and one from Cajamarca, Perú.

The Cerro de Pasco and La Quinua birds are almost topotypical. None of the entire series has the color of the back approaching the tawny russet ascribed to *punensis*, although there is a slight variation in the tone of yellow in the various specimens, the Macate birds showing both brownest and yellowest extremes. The immature male is in juvenal plumage, exhibiting buffy superciliary stripes and wing bars which are lost in the adult dress. May birds are badly worn; December birds are perfectly fresh.

I use the specific name *gayi* for this group although I am not convinced that it should not be dropped as unidentifiable, in which case the name *atriceps* D'Orbigny and Lafresnaye would be available.

Phrygilus fruticeti peruvianus Zimmer.

Phrygilus fruticeti peruvianus ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 63, 1924—Matucana, Perú; Field Mus. Nat. Hist.

Four males (including the type) and two females from Matucana, April 28–May 4, 1922; three males from Cullcui, Marañón River, December 11–16.

Compared with eight specimens from Cajamarca and sixteen from Macate, Perú; also with fourteen specimens of *fruticeti* from Chile.

The plumage has been discussed in detail in the original account.

The birds were common at Cullcui on the open hillsides and in the cultivated fields and the thorny thickets bordering the river. The males were very active and were in full song, being more in evidence than any other species of bird at that locality. The song was loud and musical, consisting of a few preliminary notes followed by a rippling cadence that was strongly suggestive of the effort of the North American Lark Bunting (*Calamospiza melanocorys*). This was sometimes given from the ground or from a perch on post or weed stem, but was just as often delivered from overhead as the bird sprang into the air with rapid wing-beats, and then fluttered down to earth

with a retarded, butterfly-like motion. This, again, was suggestive of the flight-song of the Lark Bunting.

Examination of a series of *Calamospiza* and of the present species (made in a moment of curiosity) produced some surprising results. *Calamospiza* was found to have a somewhat stouter bill, heavier rictal bristles, and a shorter tail in proportion to the length of wing than *Phrygilus fruticeti*, but other characters are not so marked as might appear at first glance. The long tertials of *Calamospiza* give the wing a shape unlike that of *P. fruticeti* but not greatly different from that of *P. alaudinus*. The conspicuous white alar patch of *Calamospiza* is suggested by the white areas on the same feathers in *fruticeti*, in which the white margins of the tertials are still present though not so sharply defined. The outer margins of the outer webs and the tips of the inner webs of the outer rectrices are white in *Calamospiza*, gray in *fruticeti*. Females and young males of both species are streaked above and below in somewhat similar fashion and the young males of *Calamospiza* acquire their first black body plumage on face, throat, and breast where *fruticeti* also is black, and the black is sometimes tipped with whitish in both species. The size and shape of the feet are about the same, though the claws of *fruticeti* may average longer; in *Calamospiza* the feet of adult males are dark, in *fruticeti* they are pale.

However, in most species of *Phrygilus* the fifth primary (from the outside) is equal to, or longer than, the first whereas in *Calamospiza* it is shorter than the first, giving the wing-tip a recognizably distinct appearance; this, with the shape of the bill, may serve to separate the two genera well enough, although the wing-tip of *Calamospiza* is not unlike that of *Melanodera melanodera*, long considered as a species of *Phrygilus*. A more careful and detailed study of the various species mentioned may show that they deserve to be placed somewhat closer to each other in generic sequence than has usually been supposed.

Phrygilus unicolor inca Zimmer.

Phrygilus unicolor inca ZIMMER, Proc. Biol. Soc. Wash., 42, p. 88, 1929—mountains near Huánuco, Perú, 12,200 feet; Field Mus. Nat. Hist.

A male from La Quinua, May 8, 1922; three males (including the type) and four females from the mountains near Huánuco, 12,200 feet, June 18–26.

Compared with two specimens from the mountains near Balsas, Perú; also with twenty specimens of *unicolor* from Chile, twenty

specimens from Las Pavas, Tucumán, Argentina, and twelve from Bolivia (Carnegie Mus.); and three specimens of *grandis* from Ecuador.

The plumages have been discussed in the original account of this subspecies.

Phrygilus alaudinus bipartitus Zimmer.

Phrygilus alaudinus bipartitus ZIMMER, Field Mus. Nat. Hist. Publ., Zool. Ser., 12, p. 61, 1924—Cajamarca, Perú; Field Mus. Nat. Hist.

A male from Vitarte, April 26, 1922; three males from Matucana, May 1–4; three males and a female from Huánuco, May 24 and July 29.

Compared with three males and a female from Cajamarca (including the type) and two males from Milluachaqui, Perú; also with ten specimens of *alaudinus* from Chile and six skins of *excelsus* from Cochabamba, Bolivia, and Puno, Perú.

An account of the plumage of this subspecies has been published with the original description. One of the Matucana males is in spotted juvenal plumage (May 4).

The species was found on the open hillsides in the arid tropical and subtropical zones.

Phrygilus plebejus plebejus Tschudi.

Ph(rygilus) plebejus TSCHUDI, Arch. Naturg., 10, (1), p. 290, May, 1844—Perú (probably Junín highlands); Mus. Neuchâtel.

A male from Matucana, May 3, 1922; two males (adult and young) from La Quinua, May 8 and 14; two males from the mountains near Huánuco, 10,500 and 12,200 feet, June 13 and 19; a young male and a female from Huánuco Viejo, December 24.

Compared with twenty additional specimens from near Otuzco, Cajamarca, Macate, Junín, and Puno, Perú; San Pedro, Antofogasta, Chile; Laguna Blanca (Catamarca), Cerro de la Laguna (Jujuy), and Maimara (Jujuy), Argentina.

There seem to be no constant differences of color in this material, but there is a gradually increasing length of wing toward the south. The Argentine and Chilean specimens are larger than my Peruvian skins while the north-Peruvian examples seem to approach the measurements of *ocularis*. Probably there is complete gradation in size from one end of the range to the other without any well-marked lines of demarcation.

Buarremon torquatus poliophrys Berlepsch and Stolzmann.

Buarremon poliophrys BERLEPSCH and STOLZMANN, P. Z. S. London, 1896, p. 347—Maraynioc, Perú; Warsaw Mus.

An adult male, a young male, and a female from the mountains near Huánuco, 10,500 feet, June 1–3, 1922, and a female from Panao, July 3.

Compared with two specimens of *assimilis* from Molinopampa, Perú, and several skins of the same race from Colombia and Ecuador; and a Bogotá skin of *atricapillus*.

The specimens agree well with the original description and represent a good intermediate between *torquatus* and *assimilis*. The Molinopampa specimens are closer to the present form than the Colombian and Ecuadorian skins in that they have traces of the black pectoral band visible on the extreme sides of the breast. The young male is in fluffy juvenal plumage and is largely olive brown with traces of dusky brown on the sides of the pileum and the sides of the head; the throat is yellowish white and the median line of the lower breast and belly is dull yellow.

Atlapetes rufigenis (Salvin).

Buarremon rufigenis SALVIN, Novit. Zool., 2, p. 5, pl. 1, fig. 2, 1895—n. Perú, type from Huamachuco or Cajabamba; Tring Mus.

A female from Cullcui, Marañón River, December 11, 1922.

No material for comparison.

The nearest ally of this species appears to be *Atlapetes seebohmi*. I can not agree with Ridgway (Bull. U. S. Nat. Mus., **50**, (1), p. 438, 1901) in placing it in the genus *Melozone*.

This solitary individual was the only one of its kind found in the region. It was rather wary and dodged very actively about the ruins of an old stone building, which was overgrown with vines and bushes. The situation was adjacent to the banks of a small tributary of the Marañón which was lined with bushes and trees and formed a veritable oasis of semi-humid conditions in an otherwise arid locality.

This record extends the known range of the species some distance to the southward.

Atlapetes schistaceus mystacalis (Taczanowski).

Buarremon mystacalis TACZANOWSKI (nec *Arremon mysticalis* SCLATER, 1852, = *Atlapetes albofrenatus* BOISSONNEAU), P. Z. S. London, 1874, p. 515—Ninarupa; type formerly in Warsaw Mus., now lost.

Buarremon taczanowskii SCLATER and SALVIN, P. Z. S. London, 1875, p. 236, pl. 35, fig. 2—new name for *Buarremon mystacalis* TACZANOWSKI.

Two females and one young male from the mountains near Huánuco, 12,200 feet, June 21 and 23, 1922; two males and two young females, Panao, 10,300 feet, July 5-9.

Compared with two Bogotá skins of *schistaceus* and a male and female from the coast range west of Popayan, Colombia; two males of *castaneifrons* from Culata and Río Mucujón, Venezuela; and five males and two females of *tamae* (including the type) from Páramo de Tamá, Venezuela and Colombia.

I have no topotypical material for comparison, but the birds in hand agree well enough with the original description and Taczanowski's more detailed one in the Ornithologie du Pérou, except that the nuchal region is not always paler than the crown as described.

The three young birds are interesting. In size they are fully grown. The Huánuco specimen and one from Panao are in fluffy plumage, with Prouts Brown back and dull ochraceous crown and nape, while the forehead is quite broadly black with the white loral patch reduced in size. Beneath they are brown on the breast, sides, flanks, and under tail-coverts, and grayish buffy white on the belly, with indistinct dusky streaks; the throat is purer white with blackish tips. The sides of the head are black except for the white loral spot and a white malar stripe, as in the adults. The other young female from Panao is somewhat older and is like the younger birds above, but below is more like the adults though with a greenish yellow wash over all, suggesting relationship with some of the yellow-bellied species.

I am induced to place this form in the *schistaceus* group because of certain evident affinities and the geographic replacement shown by these two together with *castaneifrons* and *tamae*. As has been pointed out by other writers, *mystacalis* and *castaneifrons* resemble each other more than either does *schistaceus*, although the last named occurs in the intermediate localities; *castaneifrons*, however, is somewhat closer to *schistaceus* than is *mystacalis*. In the series of *tamae* at hand, one example shows a trace of white speculum on the primaries beyond the coverts, and two others show a deepening of color on the anterior part of the crown nearly matching the color of the head in *schistaceus*. A larger series of the various forms probably would show even closer approach throughout.

I agree with Ridgway in placing this genus among the finches rather than with the tanagers as was done by Sclater and Berlepsch. Aside from the structural features which recommend this course, the habits of the present species appear to be more fringilline than tanagrine. The birds are very like the northern Towhees (*Pipilo*) in general appearance and actions, scratching on the ground under bushes and in other shady places and being found far more often there than on more elevated perches. However the genus is placed, it unquestionably is close to the border line between the two families.

Atlapetes nationi nationi (Sclater).

Pipilo mystacalis TACZANOWSKI (nec *Buarremon mystacalis* TACZANOWSKI, t. c., p. 515), P. Z. S. London, 1874, p. 521—Ninarupa, Junín, Perú; formerly Warsaw Mus., now lost.

Buarremon nationi SCLATER, P. Z. S. London, 1881, p. 485—above Lima, 10,000 feet; British Mus.

Buarremon matucanensis BRABOURNE and CHUBB, Bull. Brit. Orn. Cl., 35, p. 20, 1914—Matucana; British Mus.

Two males and two females from Matucana, April 29 and 30, 1922.

Compared with a specimen in the American Museum of Natural History from Matucana (ex British Museum), labeled by Chubb as "compared with the type of *nationi* = *B. matucanensis*."

Berlepsch and Stolzmann's *Pogonospiza mystacalis brunneiceps* from Pauza, Peru, is described as differing from *P. mystacalis mystacalis* (= *A. n. nationi*) by having the head brown instead of blackish, the front and supercilium more extensively mixed with white, the black of the chin more restricted, the throat more strongly buffy, and the bill longer. The brown head is shown by all the specimens of *nationi* examined, the amount of white is variable in the same series, but the measurements of wing, tail, and bill seem to average less than those of *brunneiceps*. It is possible, therefore, that *brunneiceps* may prove to be separable on average differences of size, though this is questionable. In any case the present specimens are typical *nationi*.

I am unable to recognize the genus *Pogonospiza* of Berlepsch and Stolzmann of which the present species is the type. This genus was founded on differences from *Buarremon* (type *B. torquatus*) in which *Pogonospiza* agrees exactly with *Atlapetes*. I am unable to separate the two latter genera, between which Berlepsch and Stolzmann did not attempt to point out any differences. Further, I can see no

resemblance to *Orchesticus* (suggested in the original description of *Pogonospiza*) which warrants placing these two genera next to each other as was done by Berlepsch in his revision of the Tanagers (Ber. V. Int. Orn.-Kongr., p. 1108, 1912).

These finches were beginning to nest when I left the vicinity of Matucana, but I did not succeed in finding any complements of eggs. The nests were constructed in small trees in the lower parts of the river valley, being placed about eight or ten feet from the ground.

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